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AN INQUIRY INTO THE STATISTICS OF
DEATHS FROM VIOLENCE.

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Late Scholar of Sidney Sussex College, Cambridge, of the Inner Temple, Barrister-at-Law; Lecturer on Forensic Medicine, Charing Cross Hospital.

CONTENTS.—PART I.—MEDICAL JURISPRUDENCE. Introduction—Identification of the Living—Identification and Examination of the Dead—The Medico-Legal Relations of Death—Signs of Death—Death from Causes usually leading to Asphyxia—Death by Burning, Sunstroke, and Electricity—Death from Cold and Death from Starvation—Wounds and Mechanical Injuries—Matters Involving the Sexual Functions—Pregnancy and Legitimacy—Criminal Abortion—Birth—Infanticide—Forms of Insanity—Legal Relationship of Insanity and other Abnormal States of Mind—Medical Examinations for Miscellaneous Purposes—Medical Privileges and Obligations—Evidence and Procedure as regards the Medical Man. PART II.—TOXICOLOGY. General Facts with regard to Poisons—Corrosive Poisons—Irritant Poisons (Metals and Non-Metals)—Gaseous Poisons—Poisonous Carbon Compounds—Poisons of Vegetable Origin—Poisons of Animal Origin—Appendix—INDEX.

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AN INQUIRY INTO THE
STATISTICS OF DEATHS FROM
VIOLENCE AND UNNATURAL CAUSES
IN THE UNITED KINGDOM ;



WITH SPECIAL REFERENCE TO DEATHS FROM STARVATION,
OVERLYING OF INFANTS, BURNING, ADMINISTRATION
OF ANÆSTHETICS, AND POISONING.

BEING A

*Thesis approved for the Degree of Doctor of Medicine in
State Medicine (and University Medal) at the
University of London.*

BY

WILLIAM A. BREND, M.A. CAMB., M.D., B.Sc. LOND.,
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MEDICAL REFEREE UNDER THE WORKMEN'S COMPENSATION ACT.



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PREFACE.

THE greater part of this Thesis was written before the outbreak of war. The suggestions it contains for increasing our knowledge of deaths from violence could not at present be put into effect. But the necessity, now widely recognised, of improving the health and vigour of the nation will certainly lead to sweeping changes in our Public Health administration, and it is hoped that, as part of a larger movement, increased attention will be directed towards the causation of, and means of reducing mortality from various forms of violence and unnatural causes.

W. A. B.

THE MEDICAL SCHOOL,
CHARING CROSS HOSPITAL,
October 1915.

AN INQUIRY INTO THE STATISTICS OF DEATHS FROM VIOLENCE AND UNNATURAL CAUSES IN THE UNITED KINGDOM.

INTRODUCTION.

THE object of this thesis is to examine the official statistics relating to deaths from violence and unnatural causes in the United Kingdom; to investigate their usefulness, and the accuracy of the returns from which they are compiled; and to suggest, where seems desirable, modifications in the present system.

For these purposes the following Government publications have been examined:—

BLUE-BOOK OR REPORT.	ISSUED BY.
Coroners' Returns, in the Criminal Statistics, England and Wales.	Home Office.
Annual Report on Births, Deaths, and Marriages in England and Wales.	Registrar-General.
Deaths from Starvation or Accelerated by Privation (England and Wales).	Local Government Board.
Street Accidents caused by Vehicles.	Home Office.
Returns of Accidents and Casualties reported by the Several Railway Companies in the United Kingdom.	Board of Trade.
Annual Report of Chief Inspector of Factories and Workshops.	Home Office.

BLUE-BOOK OR REPORT.	ISSUED BY.
General Report on Mines and Quarries.	Home Office.
Annual Report of His Majesty's Inspector of Explosives.	Home Office.
Report on Working of Boiler Explosions Acts.	Board of Trade.
Report of Chief Officer of Public Control Committee.	London County Council.
Annual Report on Births, Deaths, and Marriages in Scotland.	Registrar-General for Scotland.
Annual Report on Births, Deaths, and Marriages in Ireland.	Registrar-General for Ireland.

In all cases the Reports are for the year 1912, or as nearly as possible for 1912, that being the latest year for which complete returns are available.

In Part I., I have examined the special features of deaths from violence and unnatural causes which should determine the principles of classification adopted in the statistics, in order that they may best serve their presumed purposes.

Part II. consists of an examination of the actual systems and statistics at present in use, with some suggestions for modification of the classifications employed.

In Part III., I have examined the causation of deaths from overlying, burning of children, administration of anæsthetics, and poisoning. I have noted where the statistical information regarding these deaths is incomplete or otherwise unsatisfactory; and I have given reasons for believing that in some cases the generally received views as to their causation cannot be entirely accepted.

In Part IV., I have outlined a general scheme for collecting, collating, and recording information relating to deaths from violence and unnatural causes.

PART I.

THE GENERAL PRINCIPLES WHICH SHOULD BE OBSERVED IN STATISTICS RELATING TO DEATHS FROM VIOLENCE AND UNNATURAL CAUSES.

SYSTEM OF CLASSIFICATION.

THE objects of statistics relating to all classes of deaths may be summarised as follows:—

1. To furnish information which can be used for purely scientific purposes.
2. To furnish information for practical purposes, which may be—
 - (a) Purposes of administration.
 - (b) The framing of new legislation, or the issuing of new regulations and orders with the object of lessening mortality.
 - (c) The measuring of the effects of past legislation and orders by comparing one year, or one district, with another.

But statistics relating to natural deaths, and those relating to violent or unnatural deaths, differ in the degree to which they can serve their several purposes. The information most often sought from statistics of natural deaths relates to scientific questions or public health measures based upon scientific knowledge. For these purposes the dominating feature in the classification of natural deaths is rightly the internal or pathological cause of death. But in violent or unnatural deaths, classification

by means of the immediate pathological cause of death has little value, for although highly scientific questions may be involved in the causation of these deaths, the pathological cause rarely assists in their elucidation. Assuming that prevention of death is the main object for which knowledge is collected, the essential information required regarding any specific form of death from violence is: what classes of persons meet with this form of death, what are their numbers, and what are the causes of the deaths preventable by human effort. That is to say, the principle of pathology must be replaced by the principle of external causation, and the statistics must be so ordered as to throw all possible light upon the attendant and relevant circumstances surrounding the death. This may seem a self-evident proposition, but my excuse for emphasising it is the fact that the principle is often disregarded in official statistics, particularly in the older returns, where deaths are frequently classed under such vague headings as "suffocation," "asphyxia," and "injury," which has the effect of bringing into one category deaths of very different causation. Even in the comparatively recent International List, practical utility has been sacrificed to a considerable extent in order to achieve an apparently scientific classification. For example, "absorption of deleterious gases" in that list includes poisoning by ammonia, amyl nitrite, coal-gas, and sewer-gas; overlying, and suffocation. Death from "acute poisoning" also includes deaths from snake bites and stings of insects.

It may be pointed out that in England and Wales no difficulty from lack of knowledge as to their causation should arise in so classifying deaths. The law requires that every death from violent or unnatural causes must be the subject of a Coroner's inquest, and probably in practice more than 99 per cent. of such deaths are so investigated. Over 12 per cent. of all deaths in England and Wales come under the Coroner's purview in some form or other. The inquiry is conducted by a skilled person with power to

summon any witnesses, expert or otherwise. Thus, as far as initial collection of information is concerned, our knowledge relating to violent and unnatural deaths should be far more complete than that furnished for natural deaths by doctors' certificates, which are sometimes vague or inaccurate. But, unfortunately, this information, collected at considerable expense to the State, is not available for statistical purposes. No public use is made of Coroners' records after the inquest is over, except for a brief summary of verdicts which is issued by the Home Office, and a special report on deaths from starvation published by the Local Government Board. Coroners claim that their records are their own property, and many of them charge fees for allowing them to be consulted for private purposes. They accumulate untouched in the Coroners' offices all over the country, and thus what might be a valuable source of information is almost entirely neglected.

CO-ORDINATION OF DIFFERENT REPORTS.

Statistics relating to many different classes of deaths, or classes of persons, must necessarily be compiled and issued by different Government Departments. We must have separate reports from the Registrars-General of England, Scotland, and Ireland, and each Government Office must deal with the fatalities in those activities which come under its special purview. Yet each publication, while preserving the characters best suited to its special purpose, should be looked upon as part of a whole, and effort should be made to secure uniformity and co-ordination enabling one return to be compared with another, thus increasing the value of the entire series. To obtain this, speaking generally and subject to the exigencies of any special report, we require identity in such matters as period covered by the return, nomenclature, age-periods, and local areas employed for the geographical basis of the classification. But it will be shown that almost each one of the

Government publications stands by itself as regards one or more of these particulars. Moreover, where the same classes of deaths are being dealt with for the same purpose, we should also have identity of classification, yet in their tabulation of violent deaths, the Registrars-General of England, Scotland, and Ireland each exhibit important differences rendering comparisons between them exceedingly difficult. It may be useful to examine each of the points mentioned rather more fully.

Geographical Basis.—Save for deaths in particular trades or occupations, where the number of persons actually engaged in the work may be the most important consideration, violent deaths should generally be classed according to areas of which the population is known; and, in the great majority of cases, the Administrative areas are the most satisfactory. Yet it will be shown that the most important return of violent deaths—that of Coroners' inquests—tabulates the deaths according to the special Coroners' areas, many of which are not co-terminous with any other areas, while their populations are not known and cannot be determined from any published source. In other returns, the Administrative areas are used, and in yet others the Registration areas, while in his principal tables relating to violent deaths, the Registrar-General for England and Wales gives no local sub-division at all.

When we look at the larger areas we find that some returns are for the United Kingdom only, deaths in the separate countries not being distinguished; others are for England and Wales as a whole; others again for England, Scotland, and Wales. Uniformity is not even observed in the boundaries of the different countries, the Registrar-General, for example, placing Monmouthshire in Wales, while the Home Office places this county in England both in the Coroners' Returns and in the Return of Accidents from Vehicles. Sometimes the Isle of Man and the Channel Islands are included in the English totals, at other times they are not.

The Fact to be Recorded.—At present some returns deal with deaths which actually occurred within the period, others with deaths *registered* during the period. Usually this does not make much difference in the totals, the gain or loss at the beginning of the year being compensated for by the loss or gain at the end of the year. But an instance will be given where a disaster, which took place towards the end of December and involved the loss of some hundreds of lives, figures in one Blue-book in one year, and in another Blue-book in the next year, thus vitiating all comparison between the two Blue-books for two years.

Period of the Return.—All the returns should relate to one and the same period, the most convenient being from January 1st to December 31st. In most cases this is followed, but in the Annual Report on the Working of the Boiler Explosions Acts, for example, the year begins in July and ends in the following June.

Age-periods.—Uniformity should also be observed in classifying deaths according to the ages of deceased persons. But it will be shown that at least three separate and distinct systems of division according to age are employed in different returns.

Nomenclature.—Terms should be used with a constant meaning, and with the same meaning by all Departments. It will be found, however, that such words as “accident,” “violence,” “neglect,” “suffocation,” have different interpretations placed upon them by different Departments. Even such words as “manslaughter” and “abortion,” with definite legal significance, mean different things to the Registrar-General and to the Home Office.

Accuracy and Completeness of the Initial Certificates or Returns from which the Statistics are Compiled.—The foregoing principles apply to the form of the statistics adopted in the central offices, but it is clear that if the original certificates and individual returns from which the statistics are compiled are not both accurate and complete, the statistics themselves are seriously

reduced in value. In the succeeding pages, however, I shall call attention to the large proportion of deaths from violence which are returned under vague or undefined headings; and I shall bring forward reasons for believing that information relating to some deaths from violence never reaches the central offices, or certain of the central offices, at all. If any other explanation of the facts I shall mention can be found, then my arguments will furnish evidence of the uncertainty and confusion which attends the present system of recording deaths from violent and unnatural causes.

PART II.

AN EXAMINATION OF THE PRESENT RETURNS OF DEATHS FROM VIOLENT AND UNNATURAL CAUSES, WITH SOME SUGGESTIONS FOR THEIR MODIFICATION.

IN this part, the more important of the Government publications relating to deaths from unnatural causes are examined with a view to ascertaining how far the general principles enunciated in the previous pages are observed.

THE HOME OFFICE REPORT ON CORONERS' INQUESTS.

These, which constitute the most detailed local analysis of deaths from unnatural causes in England and Wales, are contained in the "Judicial Statistics—Part I., Criminal Statistics."

System of Classification.

The present form of the return, and selection of headings for tabulation, appears to have been drawn up about 1860, and only minor changes have been introduced since that date. No attempt seems to have been made to enlarge the scope of the information given so as to bring it into accord with the need for knowledge created by social developments within the last fifty years.

The following are the classes of verdicts tabulated:—

Col. in H.O. Report.		Numbers in 1912.	
	Deaths by Wilful or Criminal Acts—		
2.	Murder	192	
3.	Manslaughter	97	
4.	Justifiable Homicide	5	
5.	Executed	10	
6.}	Suicide { Felo de se	115	
7.}		Other Cases of Suicide	3490
	Deaths by Neglect, Exposure, or Excess—		
8.	Disease Aggravated by Neglect of Others .	97	
9.	Want, Exposure, etc. (<i>sic</i>)	231	
10.	Excessive Drinking	586	
11.	Want of Attention at Birth	275	
12.	Deaths by Accident or Misadventure	15,118	
13.	Deaths from Natural Causes	14,458	
14.}	Open Verdicts { Injuries	322	
15.}		Drowning	1125
16.}		Other Known Causes	502
17.}		Causes Unascertainable	220
18.	Still-born	255	

In broad outline this classification is based upon causation. I will, however, examine each heading in detail, with a view to showing either that the information is given in such a way as to be of little practical value, or that the number of Coroners' verdicts is no real measure of the deaths ascribed to specific causes. It will, however, be convenient to reserve deaths by "wilful or criminal acts" for examination in conjunction with the Registrar-General's Returns of these deaths; and those by "neglect, exposure, or excess" with the Local Government Board Return of deaths from starvation and privation.

As regards death by "accident or misadventure," it may be pointed out that no less than 15,118 deaths, out of a total of 37,098 inquests in 1912, are placed under this heading without further information or sub-division.

"Deaths from natural causes" numbered 14,458. It seems desirable that some information should be given as to the reasons why Coroners come to hold so large a number of inquests upon deaths which have been due to natural causes. The Coroners' Act only requires inquests to be

held in cases where "there is reasonable cause to suspect that a person has died either a violent or unnatural death, or has died a sudden death of which the cause is unknown." In view of these limitations, the fact that considerably more than one-third of all Coroners' inquests should terminate in verdicts of natural death seems to demand further explanation. Some of these inquests are rendered necessary owing to absence of medical attendance at the death, from poverty or other reasons. In others it is the fact that death occurred out-of-doors which leads to the inquest. A person who may have been under medical attendance for years for heart disease, dies suddenly in the streets and an inquest is held; whereas if the same person died at home no inquiry would follow. But my own experience leads me to think that, apart from these causes, a considerable number of inquests are held unnecessarily. The Chief Officer of the Public Control Committee of the London County Council, when giving evidence before the Departmental Committee on Coroners, brought forward some extraordinary examples of the way inquests are sometimes rushed through even in London (*v.* Appendix I.). If this occurs in open court, it will be understood that the preliminary inquiry upon which a Coroner decides whether or not to hold an inquest may be even more reckless and hurried. I have known cases in which a chance or spiteful remark of a neighbour, which the smallest investigation would have shown to be utterly without foundation, has led to the holding of an inquest. In a paper, "Amendment of the Law relating to Coroners and Inquests," which was read before the Medico-Legal Society in 1913,¹ I drew attention to the remarkable local distribution of inquests which terminate in verdicts of natural death, and gave reasons for thinking that a considerable proportion of these need not have been held, there being evidence that the Coroner is sometimes influenced by purely personal considerations. Finally, there is a class

¹ *Transactions of the Medico-Legal Society*, vol. x.

of cases, free from suspicious circumstances, in which the Coroner could undoubtedly dispense with an inquest if he had power to order a post-mortem examination before coming to his decision.

No statistical information is given in the Home Office Return upon any of these points, though they possess considerable social importance. Apart from expense, waste of jury's time, etc., it is a serious and painful ordeal for the relatives of the deceased if an inquest is held without sufficient cause. I suggest, therefore, that in future these verdicts might be classified (as part of a larger scheme to be outlined later) somewhat on the following lines, the main headings being in accordance with the Coroner's obligations under the Coroners' Act:—

- A. Cases in which suspicion of violent or unnatural death was reported to Coroner.
- B. Cases of sudden death of which cause was unknown.
 - (1) Doctor in attendance, but unable to certify.
 - (2) No doctor in attendance.
 - (a) No illness preceding death, or gravity of illness not recognised.
 - (b) Poverty of deceased.
 - (c) Doctor summoned, but unable or unwilling to attend.¹
 - (d) Wilful neglect by parents of child to summon doctor.
- C. Other cases of natural death.
 - (1) Prisoners.²
 - (2) Lunatics.²
 - (3) Others.

The only other heading as regards classification of the Coroners' Returns which need be mentioned here is "still-births." This is, of course, no measure of the total number

¹ A number of these cases have been reported since the passing of the Insurance Act.

² Deaths of all prisoners and lunatics must be reported to the Coroner.

of still-births which occur; but even as a return of those that become the subject of inquests, there is reason to doubt its accuracy, since juries frequently find that a child was still-born, in the face of the clearest medical evidence to the contrary, in order to save an unmarried mother from being charged with murder or manslaughter.

The Coroners' Areas.

The areas tabulated in the Home Office Blue-book over which Coroners exercise jurisdiction, though nominally based upon the Coroners' Act of 1844, are in fact among the oldest local divisions in the country. The "Coroners' Jurisdictions in England and Wales," issued by the Home Office in 1909, states that "The divisions of counties for Coroners' purposes under the Coroners' Act, 1844, has not been made upon a uniform system. The division is usually made by parishes, but hundreds, parliamentary divisions, petty sessional divisions, and sanitary districts, etc., have also been used, and in one case reference was made only to the areas indicated on a map which accompanied the petitions of the Justices." In some cases the Coroners' area is the county borough, though even here the boundaries are not always the same, but in the majority of cases the Coroners' area does not correspond with any other Administrative area. The following, for example, is the Coroners' area for the Southampton district:—

"Petty sessional divisions of Lymington (exclusive of the parishes of Hordle, Milford, and Milton, and parts of the parishes of Boldre and Sway); New Forest; Ringwood (parishes of Breamore [part of], Burley, Damerham, Ford-
ingbridge [part of], Martin, Toyd Farm with Allenford, Ellingham [part of], Whitsbury, and Woodgreen, and the townships of Ashley Walk and Broomy, and including the borough of Christchurch); Romsey (excluding the parish of Ampfield); Southampton; and Winchester (parts of the parish of Chandler's Ford). Boroughs of Lymington and Romsey."

The result of this is that the populations of the Coroners' areas—except for some county boroughs—are not known, and in many cases cannot be determined. Even if the laborious process of extracting the populations of the parishes from the census returns and adding them together were adopted, it would not meet the case of many areas in which the Coroners' boundary runs right through one or more parishes.

It is therefore impossible to express any of the statistics in the Home Office Return—except the grand totals and those for some county boroughs—in the form of a rate per unit of population. Nor can they be used in connection with the statistics of the Registrar-General or any other reports in which Administrative or Registration areas are employed.

There are several reasons why it may be important to determine and compare the "inquest-rate" and violent death death-rate in different areas. But such rates cannot be determined from the Home Office Returns. Up to 1911, they could be derived from the Registrar-General's Annual Report, and in the paper previously mentioned I have shown the very remarkable differences in these rates in different localities, which certainly suggest the need for further inquiry into the cause. But since that year the Registrar-General has ceased to give these rates in his Annual Report, and they cannot now be determined from any source whatever.

In the same paper I have called attention to difficulties which arise from the fact that deaths occurring in lunatic asylums are in no way distinguished from other deaths; and that although these deaths were tabulated by the Registrar-General for every asylum in the country, it was impossible to apply this information to the Coroners' Returns owing to non-correspondence of area. Thus we have an instance of the way in which the value of the statistics in both Blue-books is diminished by absence of co-ordination.

Absence of Expression as Rates.

But while expression of the statistics in terms of population is impossible, no attempt is made in the Home Office Return to express them in the form of any other rate. The crude totals alone are given, and if the investigator wishes to compare one district with another he must himself select some standard, such as "inquests held" or "cases reported to Coroner," and work out the percentages in terms of this standard. This enormously adds to the difficulty of using these statistics, and the various investigations referred to above entailed many hours of laborious calculation.

Age-periods.

The age-periods employed for sub-division of the Coroners' Returns are as follows: under 1 year; 1 to 7 years; 7 to 16 years; 16 to 25 years; 25 to 60 years; above 60 years. So far as I can ascertain, this age classification is peculiar to the Coroners' Return and differs from that adopted by any other Government Department. Even in the same volume, when setting out the ages of persons convicted of crime, the Home Office uses a different system, viz.: under 14; 14 to 16; 16 to 21; 21 to 30; 30 to 40; 40 to 50; 50 to 60; above 60.

It will be seen, therefore, that, apart from insufficiency of classification, the statistics in this volume are difficult to handle owing to absence of a common standard in terms of which they can be expressed; and that owing to uniqueness of area and age-periods they cannot be used in conjunction with any other Government publication except the Local Government Board's Return of deaths from starvation, which alone are distributed according to Coroners' areas.

ANNUAL REPORT OF THE REGISTRAR-GENERAL ON BIRTHS, DEATHS, AND MARRIAGES IN ENGLAND AND WALES.

At the end of his Annual Report the Registrar-General devotes some seventeen pages to an analysis of deaths from

violence under the main headings "accident," "suicide," "murder," and "manslaughter." The system of classification used in these pages practically dates from about 1867. It was somewhat modified in 1881, but only minor changes have been made since that year. The statistics are given for England and Wales as a whole, no classification according to locality of any sort being attempted, nor are figures given for aggregates of county boroughs, urban districts, rural districts, etc.

In the earlier part of his volume, however, that dealing chiefly with natural deaths, the Registrar-General does give a summary of deaths from violence distributed according to type of locality (urban, rural, etc.), and also according to quarter of the year. But for these purposes he abandons his own classification and adopts the main headings of the International List, which in many respects is substantially different. Thus we find in the one and the same volume two systems of classification employed, which, owing to differences in terminology, cannot be used together. When dealing with overlying I shall have occasion to examine in some detail the difficulties which arise from including deaths from overlying with deaths from "suffocation in bed" in one part of the volume, and including them with deaths from "absorption of deleterious gases" in the other part. Here, as an example to support my statement, I may refer to deaths from poisoning. In the special section on violent deaths, the Registrar-General shows 438 deaths from "poisons and poisonous vapours," including deaths from "food-poisoning and ptomaine poisoning." But on page 216, where he uses the International List, he shows 106 deaths from "poisoning by food," and 227 from "other acute poisonings," a total of 333. The explanation of this difference appears to be that deaths from the inhalation of coal-gas, carbon monoxide, and other poisonous fumes, are in the one place classed with deaths from poisoning, and in the other with deaths from suffocation. Similarly, in one place 696 suicides by poisoning are given, while in the other the

number is 547, in this case the International List apparently including deaths from inhalation of poisonous gases under the heading "asphyxia," which in many instances is quite inaccurate.

To turn now to the detailed classification at the end of the volume, and taking first deaths from accident and negligence (*v.* Appendix II.), it will be seen that no consistent scheme is followed, and that various bases, not mutually exclusive, are adopted. Thus locality is the basis in "mines, quarries, etc."; occupation in "building operations"; the death-producing agent in "vehicles" and "machinery"; and the pathological cause of death in "poisons," "drowning," and "suffocation." This leads to an awkward sub-classification. "Machinery," for example, has a section to itself, 5, but it also occurs in 1 (*a*); 1 (*c*); 2 (*a*); 3; and 4. Even in the special section on machinery the classification is not consistent; a death, for example, from a lift accident in a textile factory might be placed under either of two headings, as might also one from electrical machinery in metal works.

In the sub-headings no attempt is made to define the classes of persons killed, and very little indication is given of the cause of the accidents. Under "machinery," for instance, there is no separation of persons employed about the machinery from those who merely happened to be in the neighbourhood, or were wrongfully there; and there is no indication of the type of machinery (except lifts and electrical machinery), or whether the accident was due to improper handling of the machine, or to defects in the machinery, or to absence of guard-rails and similar precautions, or to carelessness of an employee, etc., etc. Under "railways," no distinction is made between deaths of railway servants, passengers, and other persons. Under "vehicular accidents," the type of vehicle is indicated (though with a large proportion of "undefined"), but no distinction is made between deaths of pedestrians, persons driving, and passengers in the vehicles; nor is there any indication as to

whether the accident was due to excessive speed, collision, break-down of vehicle, etc. These headings are further considered with the special reports dealing with such deaths. The class "gunshot wounds" is not divided so as to distinguish between deaths of gamekeepers, sportsmen, soldiers shot while handling firearms, boys playing with guns, pistols, etc. Coroners have frequently called attention to the need for restrictions on the indiscriminate sale of firearms, and in a recent case where a youth of 16 was charged with manslaughter by shooting a girl with a toy pistol, Mr Justice Rowlatt said "the pistol was expressly made to dodge the Pistols Act, and was a deadly and dangerous weapon." But the strength of the case for legislation in this matter rests upon the number of such deaths, of which we are at present in absolute ignorance.

Some of these deaths are dealt with in detail in the special reports issued by other Government Departments, and, in such cases, insufficiency of classification in the Registrar-General's Report is relatively unimportant. But it must be remembered that most of these special reports are limited to accidents from certain causes among persons who come under the Acts which govern the reports. The Registrar-General's Report is the only one which deals comprehensively with all deaths from these causes.

Much more serious is the paucity of information regarding deaths which do not come within other special reports, such as those from overlying, burning, administration of anæsthetics, and poisoning. But in order to demonstrate where information is lacking, it is necessary to examine generally knowledge relating to the causation of these deaths, and I accordingly reserve them for more detailed consideration in Part III.

Indefiniteness of Information supplied by Coroners to the Registrar-General.

The Coroners' Act requires of the jury "that they shall also inquire of and find the particulars for the time being

required by the Registration Acts to be registered concerning the deaths." But, in spite of this, the proportion of deaths which appear in the statistics under such headings as "not otherwise described," "undefined," or "not stated how," etc., is so large as in many cases by itself to render the statistics of little value. Out of 10,997 deaths of males from accident and negligence, some 2800 are classed under such headings; and of the 4841 deaths of females, 1650 are so tabulated. In certain sub-sections the undefined deaths are more than 50 per cent. of the total classified deaths. In "machinery," for instance, 54 deaths are placed under locality, 60 under type of machinery, and 111 under "other machinery." Of burns in males, 277 out of a total of 489 appear under the heading "not stated how." There are 842 cases of drowning "otherwise or not stated how," *exclusive* of 863 "open" verdicts; 82 deaths from suffocation "otherwise or not stated"; 1022 deaths from falls without further indication as to cause; and 105 deaths attributed simply to "accident" or "violence." The above are for male deaths, but an even larger degree of incompleteness of information will be found in the section relating to deaths of females. The Registrar-General endeavours to reduce the number of vague returns by writing for further information to many of the Coroners concerned. But, in spite of this, the proportion of such cases seems excessively high, having regard to the fact that in every instance a special inquiry has been held by the State at an average cost of about four pounds.

Incompleteness of the Figures supplied to the Registrar-General.

Apart from indefiniteness, there is reason to believe that sometimes information even of the fact of death from violence never reaches the Registrar-General at all; or if it does, that it may be recorded under a totally different heading. Evidence in support of this statement is furnished by comparison of different returns made to different Depart-

ments regarding one and the same class of deaths. The return made by Coroners to the Home Office is likely to be the most complete, since the Coroners are supplied with forms which they must themselves fill up and send direct to the Home Office. The Registrar-General obtains his information from the local Registrars, who in turn obtain it from the Coroners, and almost without exception where the headings are comparable, the Registrar-General's figures are found to be lower than those of the Home Office. Some of the discrepancies can be explained by differences of terminology or classification in the various returns, but when every allowance is made it is difficult to come to the conclusion other than that some of the figures supplied are incomplete. It is not suggested that any error of compilation occurs in the central department, though whether at any earlier stage the Coroners or the local Registrars are at fault it is not easy to say. But an examination of the Return of deaths from starvation, issued by the Local Government Board, strongly suggests that in this instance the Coroners are not making full returns. In addition to the evidence afforded by general comparison, I will bring forward specific instances of deaths by manslaughter and by starvation, identified in the Home Office Returns by verdict, age, and sex, which do not appear in the Registrar-General's Report at all.

It is easy to see how omissions might occur without the fact ever becoming known, except by a minute analysis such as that to which I have subjected the returns. In a case of natural death, the doctor gives a certificate of death to a relative of the deceased, and the relative must send that certificate to the local Registrar, since he cannot otherwise obtain the burial certificate, without which the undertaker will refuse to bury the body. But after an inquest the Coroner himself gives the certificate of burial to the relatives, and as far as they and the burial authorities are concerned no further procedure is required. If now the Coroner, or his clerk, forgets to send the certificate of death

to the local Registrar, there is nothing that would lead to the fact becoming known. That such omissions do take place sometimes, I am convinced, but there is no means of gauging their total number, though some of the statistics suggest that they may not be inconsiderable. If some of the comparisons in the following pages seem intrinsically of little importance, it must be remembered that it is not for themselves that I have made them, but for the sake of throwing light upon the whole system and demonstrating the confusion which exists.

COMPARISON OF THE STATISTICS OF THE REGISTRAR-GENERAL AND OF THE HOME OFFICE.

In both reports the deaths are those *registered* during the year, and the information is that contained in Coroners' verdicts. The total deaths from "accident, misadventure, and negligence (non-criminal)," in England and Wales, given by the two offices are as follows :—

Registrar-General.

Deaths from "accident and negligence," including "open" verdicts :

Males	10,997
Females	4,841
Total	<hr/> 15,838

Home Office.

Deaths from "accident or misadventure," including "open" verdicts, and deaths from "want, exposure, etc." :

Males	12,176
Females	5,342
Total	<hr/> 17,518

The Registrar-General's figures comprise all the deaths attributed by him to "accident and negligence," and he does not distinguish between these and "misadventure." It is probable that a certain proportion of the 283 deaths con-

nected with the administration of anæsthetics (tabulated separately on page xcix of his Report) should be included. But we do not know the number of those which were attributed to "accident and negligence," and even if the whole number were included the discrepancy would still be very considerable. The Home Office total has been obtained by adding together column 12 and columns 14-17 in the return (*v.* page 10). I have also included column 9, which I take to be the equivalent of the Registrar-General's "death from starvation and exposure." Columns 8, 10, and 11 have not been included, though it is probable that some at least of these deaths appear in the Registrar-General's Report under "accident and negligence."

As regards certain classes of deaths, detailed comparison is possible. Perhaps the most remarkable discrepancies relate to deaths from cold and exposure, and these I will deal with when examining the Local Government Board Return relating to such deaths. But a few others may be pointed out here.

The Home Office gives the following deaths from "want of attention at birth":—

Males	139
Females	136
Total	<hr/> 275

On page 216 of his Report, the Registrar-General gives the following deaths of infants under one month of age from "lack of care":—

Males	127
Females	130
Total	<hr/> 257

Of these totals we might have expected that of the Registrar-General to be the larger, since it includes deaths up to one month and may include some non-inquest cases; whereas the Home Office Return relates only to birth and only to inquest cases. In previous years the discrepancy

between these figures has been considerably greater. Thus in 1911 the figures were respectively: Home Office, 296; Registrar-General, 237. It may be that different deaths are included under these headings, but if so, the vagueness of the terminology is unsatisfactory.

Alcoholism and Excessive Drinking.—The total number of deaths recorded by the Registrar-General under “alcoholism” and “alcoholic cirrhosis of the liver” is naturally much larger than that returned by the Home Office under “excessive drinking,” since it includes many deaths from “alcoholism” certified without inquest. But for some of the county boroughs we can make detailed comparison, and in the case of Liverpool, for instance, we get the following remarkable figures:—

Registrar-General.

Deaths from “alcoholism” in Liverpool:

Males	.	.	.	.	.	22
Females	.	.	.	.	.	14
Total	.	.	.	.	.	<hr/>36

Home Office.

Verdicts of death from “excessive drinking” in Liverpool:

Males	.	.	.	.	.	79
Females	.	.	.	.	.	34
Total	.	.	.	.	.	<hr/>113

The Registrar-General also tabulates 91 deaths in Liverpool from “cirrhosis of the liver,” but it cannot be assumed that the non-inclusion of these is the cause of the discrepancy. In the whole of England and Wales there were 3378 deaths from “cirrhosis of the liver” without further qualification, and 280 returned as “alcoholic cirrhosis.” To make the Home Office and Registrar-General’s figures agree, on the theory that “alcoholic cirrhosis of the liver” should be added to the latter, we should have to assume that 70 out of the 280, or one-quarter of the total deaths from “alco-

holic cirrhosis" in England and Wales, were returned from Liverpool alone ; and, further, that the proportion of deaths returned as "cirrhosis" without qualification to deaths from "alcoholic cirrhosis" is, in Liverpool, 21 to 70 as compared with 3378 to 280 for the whole of England and Wales.

In this case it is probable that the Registrar-General revises the Coroners' verdicts from Liverpool, and distributes a certain number of them among natural deaths. If this is the case, I do not suggest that under present circumstances he is wrong in so doing. But I do urge that it raises the whole question as to the value of Coroners' certificates and returns for statistical purposes, if their verdicts are liable to revision by an office which does not possess any record of the evidence taken at the inquest. That such revision does take place in the case of deaths from manslaughter is admitted, and will be referred to later.

As an instance of a discrepancy in deaths tabulated under precisely the same heading, I may point out that the Registrar-General records 863 "open" verdicts of deaths of males by drowning, and the Home Office 891 such verdicts. Other examples will be given when examining deaths from murder and manslaughter, vehicular accidents, railway accidents, etc.

Deaths from Suicide.

The Registrar-General classifies deaths from suicide according to the means adopted. The Home Office merely distinguishes between suicide and *felo de se*. In my paper "Amendment of the Law relating to Coroners," reasons were given for believing that the verdict of *felo de se* depends more upon the idiosyncrasy of the Coroner than upon any other factor (*v.* Appendix III.). The separation of these verdicts, therefore, possesses no scientific or sociological value, and might well be dropped. I am inclined to think that a classification of these deaths according to the motive which drove the deceased to self-destruction might with advantage be given in addition to

that showing the means adopted. That such a classification is feasible is shown by the fact that Dr Wynn Westcott has published a list of his verdicts of suicide under the following main headings:—True insanity; grief at loss of relative; alcoholic excess; business failure or money losses; domestic troubles; passions, love and jealousy; criminals in fear of arrest; disease and pain; poverty and out of work; drug habits. I do not, however, pursue this subject further, since we can do little to prevent these deaths except by improving general conditions.

Deaths from Murder and Manslaughter.

It has been suggested to me that the principal object of the statistics relating to these deaths is to provide a measure of crime, and I will examine them chiefly from that point of view.

We have three sets of statistics relating to deaths from homicide, viz., the Registrar-General's tables, the Coroners' verdicts, and the convictions for murder and manslaughter.

Now, although the Registrar-General heads his tables *deaths* from murder and manslaughter, neither they nor the Coroners' Returns in the Home Office Report are any real measure of the number of persons who were killed by homicide. They are simply the verdicts of Coroners' juries, which, like Magistrates' commitments for trial, are often equivalent merely to an expression of opinion that a case has been made out for further inquiry. No correction is made in the returns for the important number of deaths which, after more thorough investigation by a higher court, are found not to have been due to crime. In a considerable number of cases an inquest verdict of murder or manslaughter is not upheld at the trial. In other cases a Coroner's jury may have found a verdict of accidental or natural death, and yet a person may be arrested and convicted of having caused the death by murder or manslaughter. This is not frequent in the case of murder, but it is by no means rare in the case of manslaughter. Hence,

as a measure of crime, these statistics are liable to two serious sources of error, rendering them of little value for this and other purposes.

The following are the figures given in the three returns :—

Murder.

	Home Office. Verdicts of juries.	Registrar-General. “Deaths.”	Convictions. ¹
Males .	74	80	...
Females .	118	121	...
Total .	192	201	40

Manslaughter.

	Home Office. Verdicts of juries.	Registrar-General. “Deaths.”	Convictions.
Males .	70	59	...
Females .	27	52	...
Total .	97	111	72

Yet from none of these statistics can we learn certain simple facts which might possess considerable social value ; for example :—

(1) We do not know the total number of persons proved —by the best test available, viz., conviction of the murderer —to have been murdered. The number of convictions does not provide this information, since one murderer may have murdered several persons.

(2) We do not know the number of cases in which there is presumptive evidence—*i.e.* a Coroner’s verdict to that effect—that murder has been committed, but in which no person has been convicted. This is obviously of importance,

¹ Including “guilty, but insane.”

since it affords some measure of the efficacy of the present system of detecting and arresting criminals. The Home Office Report tells us that in 37 cases the person against whom the verdict of murder was returned at the inquest committed suicide after the crime. If these cases be added to the 40 convictions, we get a total of 77 murderers accounted for, which means probably a slightly higher number of murders. But the Registrar-General records 201 murders and the Home Office 192, from which it would appear that something like 60 per cent. of the murders committed in this country remain undetected, but in the absence of knowledge as to the extent to which these figures are swollen by the inclusion of cases which are not criminal at all, so far as the higher courts decide, this inference is not justified.

It must be remembered that the two sources of error indicated above tend to neutralise each other as regards total figures; but in any detailed analysis their effects in invalidating the statistics are combined. Hence the Registrar-General's detailed analysis of deaths from murder and manslaughter according to the method adopted can have but a relatively small approximation to reality.

Manslaughter and Death from Criminal Abortion.— It will be noticed that there are considerable differences in the Home Office and Registrar-General's figures both of murder and manslaughter. For most of these differences I have been unable to obtain any explanation. But in the case of deaths of females from manslaughter, where the greatest discrepancy occurs, I have received from the Registrar-General an explanation which throws considerable light upon the difficulties arising under the present system and the methods adopted to deal with them. In a certain number of inquests it is proved that a woman has died from the effects of criminal abortion, but there is no evidence to show whether induced by herself or another person. These are really "open" verdicts, and presumably the Coroners enter them as such in their returns to the

Home Office. But the Registrar-General classifies them under "manslaughter." This, I submit, is distinctly an error, for criminal abortion can never be manslaughter. If induced by the woman herself, death is due to suicide, and if induced by another person it is murder. These deaths should either be shown separately or classed under "open" verdicts.

This explanation, however, will not account for the appreciable difference shown by the two offices in the numbers of deaths of males from manslaughter.

Omission of Deaths from the Registrar-General's Tables.—I have already shown that comparison of gross totals of various classes of deaths suggests that the Registrar-General fails to receive intelligence of all deaths from violence. The deaths from manslaughter tabulated by the two offices provide instances of individual deaths which are not recorded by the Registrar-General. The table on page 126 of the Home Office Return records the manslaughter of one male child and two female children from suffocation in bed with parents. The Registrar-General, however, records *no* male death from manslaughter by suffocation, and only *one* female infant's death from manslaughter by suffocation, which is qualified by the words "not stated how."

The foregoing examination of the Reports of the Registrar-General and the Home Office suggests that for numerous reasons neither can be regarded as of much practical value. But before summarising general conclusions, comparison with certain other official publications must be made.

DEATHS FROM STARVATION OR ACCELERATED BY PRIVATION (ENGLAND AND WALES).

This is the title of a return which has been issued by the Local Government Board since 1908. It consists of cases in which a Coroner's jury has found a verdict of

death from starvation or accelerated by privation, and contains useful information as to the circumstances of persons dying in abject poverty. It cannot, however, be regarded as representing the total deaths from these causes which occur in the country, since study of the individual cases shows that it is not so much the fact that death was due to starvation or privation which led to an inquest, as the circumstances attending the death. Starvation alone as a cause of death is exceedingly rare, except among infants improperly fed, a class with which the return does not deal. In the great majority of the cases described, the deceased person was suffering from tuberculosis, heart-disease, chronic kidney disease, or some other malady, and it was chiefly the fact that the deceased was found dead in some public place, or had been unable to afford medical attendance, or had failed to seek Poor Law relief, which necessitated the inquest. It is certain that in a very considerable proportion of these cases a certificate of death from natural causes would have been forthcoming if the deceased had happened to receive medical attendance for a few days before death. The return, therefore, can only be looked upon as providing samples of such deaths, for every doctor who has had much experience of general practice in a very poor neighbourhood, or of Poor Law work, knows that if the 93 cases described in the return represented all the deaths from starvation or accelerated by privation in England and Wales, the country would have reason to congratulate itself.

Looking at the return, however, merely as a record of verdicts, it must be remembered that there is great uncertainty as to the line which juries will take in these cases. If the deceased was homeless, or was a pauper, they may jump to the conclusion that death was accelerated by privation, even though the body was well nourished and medical evidence shows that the deceased was suffering from some advanced disease which might have been fatal at any moment. An appearance of emaciation in a body—

though perhaps entirely due to disease—may also impress them, and a case is described in the Report of the Departmental Committee on Coroners where even a verdict of manslaughter appears to have been based chiefly upon the emaciated appearance of the body. I have been present at inquests where the jury have clearly been moved by a tale of poverty and have been anxious to express their sentiments in their verdict, though, as a matter of fact, poverty was not the cause of death. In cases 21, 77, and 80 of the Local Government Board list, the details given do not support the view that privation was the essential cause of death.¹ On the other hand, I have been at inquests where the jury has failed to appreciate the part played by lack of means in bringing about the death, and has returned a verdict of natural causes without qualification. In some distressing cases where children have suffered, they have deliberately, for the sake of the parents, abstained from recording starvation in their verdict.

The Incompleteness of the Local Government Board Return.

Apart from the considerations examined above, I now wish to bring forward reasons for believing that even as a record of the cases in which a Coroner's jury has found a verdict of death from starvation or accelerated by privation, a very considerable proportion are not reported by Coroners to the Local Government Board. For this purpose we must consider the Return in conjunction with the Home Office Return of Coroners' verdicts and the Registrar-General's

¹ For example, in case 21, a man aged 61 years, whose death was ascribed to pneumonia accelerated by want of proper nourishment and care, the relieving officer reported as follows:—"No application had been made by or on behalf of this man for relief. The case was not brought to my notice in any way. I have made inquiries and find that deceased had been in the employ of a local blacksmith and wheelwright for upwards of twenty-eight years, and for some time had received 26s. a week wages, and had no dependants; he had scarcely lost a day's work for years until a week prior to his death. One of his fellow-employees informs me that he had seen deceased regularly order meat and pay for other necessities of life."

Report. The following deaths are tabulated by the three offices:—

Local Government Board.

Deaths from “starvation or accelerated by privation”:

Males	61
Females	33
Total	<u>94</u> ¹

Home Office.

Deaths from “want, exposure, etc.”:

Males	162
Females	69
Total	<u>231</u>

Registrar-General.

	Males.	Females.
“Gelatino and exposure to cold”	92	22
“Starvation”	17	15
	<u>109</u>	<u>37</u>
Total	<u>146</u>	

The headings in these returns, though they appear to relate to essentially the same deaths, are not exactly the same, but it is impossible to determine more definitely what each includes. Apart from other considerations, this is an unsatisfactory feature, and illustrates the vagueness of terminology which characterises so many of the statistical returns relating to deaths from violence.

Confining attention for the moment to the Home Office and Local Government Board Returns, it will be noticed that the totals differ by no less than 138. We should not expect exact coincidence between the totals, since the Local Government Board Return applies only to deaths associated with privation, while the Home Office includes all deaths

¹ One case of manslaughter.

from "want, exposure, etc.," among them a certain number of persons who, though they die of starvation, are found to be in possession of considerable sums of money. But these cases are quite exceptional, and it is impossible to believe that out of 231 cases in which Coroners' juries found verdicts of death from "want, exposure, etc.," 138 were not associated with privation.

The other explanation is that the excess of deaths in the Home Office Return is due to those included under the "etc." If this is so—since deaths from "disease aggravated by neglect of others" and deaths from "want of attention at birth" are both excluded—the question arises what is the meaning of the heading and what deaths does it include. The assumption which seems most justified is that the "etc." includes causes closely related to want and exposure.

The difference in the figures, however, might have been attributed to differences in the deaths included under the two headings, but for the fact that a detailed comparison of the local distribution gives remarkable support to the view that the discrepancy is due chiefly to failure of Coroners to make complete returns to the Local Government Board. This comparison is possible, since the deaths in both reports are distributed according to Coroners' areas. It should be noted that the return made by Coroners to the Local Government Board is not a statutory obligation, but merely one they are requested to fulfil.

There are about 330 Coroners' areas in England and Wales. Of these, 101 have returned the 231 deaths which appear in the Home Office Report; and of the 101 areas, 37 have also made returns to the Local Government Board, accounting for 91¹ of the deaths recorded by that office.

The following table exhibits the returns of the two offices according to locality:—

¹ Rochester City and Salisbury City each return one death to the Local Government Board, but no deaths to the Home Office.

Coroner's area.	Deaths returned to Home Office.	Deaths returned to L.G.B.
London—		
Eastern District	20	13
North-Eastern District	10	11
Central District	8	1
Western District	5	5
South-Western District	6	6
Southwark	3	3
Leeds	8	8
Stockton Ward District	7	6
Reading	4	3
West Derby	4	2
Essex (Southern and Western)	3	3
Chester Ward District	3	2
Gloucester (Upper District)	3	2
Poole	2	2
Preston District	2	2
Liverpool C.B.	11	1
Wakefield (Pontefract)	6	1
Twenty other districts each re- turning one death to L.G.B. and one or more to Home Office }	26	20
Warwick (Northern District)	7	0
Nottingham C.B. and District	6	0
Sunderland C.B.	5	0
Sixty-one other districts each returning three or less deaths to Home Office, but none to L.G.B. }	82	0
	231	91

It will be seen that where Coroners' Returns do appear in both reports, the figures are usually the same or only slightly different, the only marked exceptions being those of Central London and Liverpool, and to a less extent East London. Where differences occur they are most often due to complete absence of any return in the Local Government

Board Report. Comparing, for instance, Stockton and Sunderland, two similar towns in the same county, we find that while 6 out of the 7 cases reported to the Home Office from Stockton also find a place in the Local Government Board Return, not one out of the 5 cases reported from Sunderland so appears. In Leeds, Western and South-Western London, and Southwark, 22 cases appear in the Home Office Report and 22 in the Local Government Board Report; whereas out of 38 cases recorded by the Home Office in Central London, Wakefield, Liverpool, Warwick, and Nottingham, only 3 appear in the Local Government Board Report as having been associated with privation. Finally, out of 82 other cases scattered over other districts, not a single one appears in the Local Government Board Return. The above table may be summarised as follows:—

	H.O. Deaths.	L.G.B. Deaths.
Areas which return to both offices:—		
37, accounting for	131	91
Areas which return to Home Office alone:—64, accounting for	100	0
	231	91

If the deaths in the Local Government Board Return be apportioned according to counties, we get the same exceedingly irregular distribution: of the 91 cases no less than 62 coming from three counties, viz., 40 from London, 12 from Yorkshire, and 10 from Durham; while none are returned from more than half the counties in the country. Glamorganshire, which contributes 12 to the Home Office, only reports 1 case to the Local Government Board. It is clear, therefore, that the bulk of the discrepancy in the totals is not caused by a more or less constant difference in each

locality, but to the fact that from nearly two-thirds of the districts which report to the Home Office no cases appear in the Local Government Board Returns.

This analysis shows one of two things: either that many Coroners are not making returns, or are making incomplete returns, to the Local Government Board; or that the Coroners in Liverpool, Warwick, Nottingham, and elsewhere are placing quite different interpretations upon the requirements of the two Government Departments, as compared with the interpretations placed upon them by the Coroners of Leeds, Stockton, South-West London, etc. If the latter is the explanation, then it shows how confused and unreliable is the whole system of these statistics.

The Registrar-General's Returns.—In this Report deaths from starvation and deaths from cold are shown separately, the total number from the two causes being intermediate between the totals for the other two offices. No doubt most of the discrepancy arises from differences of definition or terminology, but it is not worth while examining the various possibilities, since my main object is not to arrive at an explanation of the differences, but to demonstrate the existence of a state of confusion which, in spite of three separate sets of statistics, issued by three different Departments, leaves us quite uncertain as to the numbers of these deaths in England and Wales; and as to their causation, except in regard to the 94 cases described in the Local Government Board Return.

Omissions from the Registrar-General's Report.—When dealing with manslaughter, I pointed out some cases which did not appear in the Registrar-General's Report. The Return of the Local Government Board on deaths from starvation and privation furnishes further examples. Case 13 was a male child aged 10 weeks, the verdict being "heart-failure from insufficient nourishment." Case 27 was a male child aged 7 weeks, in regard to whom the jury found, "the deceased died because of insufficient

nourishment; a contributory cause being bronchitis, which tended to accelerate death." Case 31 was a woman aged 43, verdict "starvation." In all these cases death is definitely and unequivocally attributed to starvation by the inquest jury. But the Registrar-General's tables contain no male deaths from starvation below the age of 30, and no female death in the quinquennium 40 to 45. I cannot suggest any other heading under which the first and third deaths could have been placed, and to have tabulated the second under "bronchitis" would obviously not have been representing the facts.

It is only quite exceptionally that one can identify individual deaths in this manner in the statistics; and it is remarkable, with the few opportunities available, omissions should have been found in the Registrar-General's tables of deaths from manslaughter and from starvation. It is difficult to account for these omissions except by the view that the information was never received.

STREET ACCIDENTS CAUSED BY VEHICLES.

The Registrar-General classifies these deaths according to type of vehicle. The Annual Home Office Return shows the number of accidents resulting in death known by the police to have been caused by vehicles in streets, roads, or public places, classified according to type of vehicle and county. Neither authority gives any information as to who are the classes of persons killed, distinguishing between drivers, passengers, pedestrians, etc.; or whether the accident was due to carelessness or drunkenness of driver, negligence of pedestrian, excessive speed, break-down of vehicle, collision, faulty condition of road, bolting of horse, etc., etc., though all these particulars have been, or should have been, ascertained at Coroners' inquests and are somewhere on record.

The following are the figures given by the two offices:—

	Home Office. Fatal accidents.	Registrar-General. Deaths registered.
Mechanically propelled vehicles ¹	936	888
Horse-drawn vehicles ²	549	526
Undefined ³ . . . . .	...	425
	1485	1839

As illustrating the deficiencies in the information supplied to the Registrar-General, it should be noticed that the police, using different machinery for acquiring their knowledge, are able to determine the type of every vehicle concerned, whereas the Registrar-General is obliged to leave more than one-fifth of his total "undefined."

The difference in the totals is probably mainly due to the fact that one return relates to deaths in public places, and the other to all deaths. A small part of the difference may result from one total relating to fatalities actually occurring in the year, and the other to deaths registered; and from the fact that some of the fatal accidents in the Home Office Return may have caused more than one death. But it seems clear that some 350 persons must have been killed by vehicular accidents in places other than "streets, roads, and public places," and it appears desirable that greater light should be thrown on the locality and mode of occurrence of these deaths in the Registrar-General's Report. It should be noticed that they do not include deaths in mines, since the Registrar-General tabulates separately an additional 130 deaths from "wagon, tram, etc.," in mines; nor do they include deaths in quarries.

DEATHS ON RAILWAYS.

The Board of Trade Return of accidents and casualties reported on public railways in the United Kingdom, furnishes an example of the way in which deaths from

¹ Not including aeroplanes.

² Not including horses.

³ Not including bicycles and perambulators.

violence can be classified in order to yield clear and valuable information. Separate returns are given for passengers, servants, and other persons, and in regard to each of these classes statistics are given of deaths from collisions, derailments, running into gates or obstacles, bursting of boilers, failure of rolling stock, failure of permanent way, fires in trains, etc. In subsequent tables these are still more minutely analysed, the principle of causation being kept steadily in view. Finally, the main headings are again distributed according to the divisions of the United Kingdom, and according to the separate railway companies. Such a classification is simple, useful, and in accordance with modern requirements. The Registrar-General's classification, on the other hand, is neither sufficiently detailed nor definite to be of much practical value.

It might be said that since the Board of Trade analysis is so complete, there is no need for the Registrar-General to give a detailed classification. But it must be remembered that the Board of Trade Report relates only to deaths on public railways, the number of such fatalities in England and Wales being 611 in 1912 (exclusive of suicides). The Registrar-General tabulates deaths on all railways, his total for the same year being 738. Hence for the 127 deaths which appear to occur on privately owned railways (exclusive of deaths on railways connected with mines), we have no information either as to locality or causation.

It may be noted that accidents and fatalities are reported direct to the Board of Trade by the companies themselves. They draw their own conclusions as to the causes, and do not necessarily wait for or accept the verdict of a Coroner's inquest. In some special cases inquiries are conducted by the Board's inspectors.

DEATHS IN FACTORIES AND WORKSHOPS.

These also are fully analysed in an Annual Home Office Report. But the question arises whether, if it is desirable to investigate deaths in factories and workshops, it is not

equally important to investigate certain classes of deaths from similar causes occurring outside factories and workshops. Take, for instance, lead poisoning. The Home Office tabulates in detail 577 cases, with 44 deaths, and mentions in addition 256 cases, with 47 deaths, among house painters and plumbers who did not come under the Acts. But the Registrar-General records 116 deaths from chronic lead poisoning. It seems desirable that greater light should be thrown on the cases which do not appear in the Home Office analysis, especially in view of the increasing practice of taking lead compounds for the purpose of inducing abortion.

DEATHS IN MINES AND QUARRIES.

The Annual Home Office Report on Mines and Quarries is another useful volume, the main object of the section dealing with fatalities being to display the causes of these deaths.

The Report for the year 1911 affords a good example of the confusion which may arise when one Government Department records actual deaths, and the other deaths registered. According to the Home Office there were, in that year, 1050 deaths in English and Welsh coalfields; according to the Registrar-General the number was 1364. The difference is almost entirely accounted for by the 342 deaths which occurred in the Pretoria Mine disaster on 21st December 1910. These deaths are recorded in the Home Office volume for 1910 and in the Registrar-General's volume for 1911. It is clear that in measuring mortality from mining accidents, quite different results would be obtained according to the authority consulted. Lack of co-ordination between various Government Departments in so fundamental a matter seems highly undesirable.

Detailed comparison of the Registrar-General's Report with that of the Home Office brings to light many inexplicable differences, particularly in the section relating to quarries. Sufficient examples of such discrepancies have, however, already been given.

ANNUAL REPORT OF THE REGISTRAR-GENERAL FOR IRELAND ON MARRIAGES, BIRTHS, AND DEATHS.

Little space is devoted in this volume to deaths from violence or unnatural causes. The system of classification—differing from that used in England—follows the main headings of the International List, but the few classes into which the deaths are divided include such large numbers as to be practically valueless. Thus, out of a total of 1786 deaths from all forms of violence, including suicide, 454 appear under the heading “traumatism,” 412 under “burns (conflagration excepted),” 246 under “accidental drowning,” and 199 under “other external violence,” none of these classes being further divided. There is no separation of deaths from mining accidents, railway accidents, street vehicles, and various other causes; and, as far as the statistics are concerned, we might conclude that no deaths occur in Ireland from or under the administration of anæsthetics. An example of the difficulty of using the Irish statistics with those of England and Wales will be given later.

Since no less than 22·6 per cent. of the total deaths in Ireland are uncertified owing to absence of medical attendance—and in Connaught actually 48·5 per cent. are not certified,—it seems particularly important that deaths from unknown or unnatural causes in that country should be fully investigated. But this would appear far from being the case. Although 1786 deaths from violence were registered in Ireland, upon every one of which an inquest should have been held, the total number of inquests held in Ireland, in 1912, was only 1650, *that is, 136 fewer than the total deaths registered as due to violence.* Moreover, it must be remembered that at least some of the verdicts would have been verdicts of natural death. In England, with 1·38 per cent. of uncertified deaths,¹ one inquest is held in every 13 deaths; but in Ireland, with 22 per cent. of un-

¹ This was the percentage in 1910. The Registrar-General does not appear to have tabulated uncertified deaths since that year.

certified deaths, one inquest is only held in every 44 deaths. Great uncertainty, therefore, surrounds the whole of the Irish statistics relating to deaths from violence. For example, the suicide rate in Ireland is 37·6 per million of the population, whereas in England and Wales the rate is 99 per million. This is a remarkable contrast, but whether the difference is due to difference in the conditions of life, or to difference in the national temperament, or simply to incompleteness of the statistics, it is quite impossible to determine.

ANNUAL REPORT OF THE REGISTRAR-GENERAL OF BIRTHS, DEATHS, AND MARRIAGES IN SCOTLAND.

The method of classifying violent deaths in Scotland differs again from that employed in either England or Ireland. In its main headings it resembles an abbreviated form of the English system, but there are important differences of which illustrations will be given later.

The system of investigating deaths from violence in Scotland is entirely different from that in England, inquiries being conducted by the Procurator-Fiscal at his discretion, and with much simpler procedure than that of an inquest. There is no reason to suppose that any appreciable number of such deaths is overlooked. If we take the death-rate from accidents as a whole, we find that in Scotland it is 556 per million of the population, whereas in England it is 433 per million on the basis of the Registrar-General figures, or 471 per million on the Home Office figures. These rates certainly point to adequacy of the Scotch system of investigation as far as numbers are concerned.

Nevertheless, when we compare the figures in the Report of the Registrar-General for Scotland with those in other returns, we get the same puzzling differences as already described. For example, the Registrar-General tabulates 113 deaths from vehicles, but the Home Office, in the General Report for the United Kingdom already referred

to, records 179 fatal accidents from vehicles. The Registrar-General shows 119 deaths in coal-mines, but the Home Office figures for the Scotch coalfields is 161. Deaths on railways in Scotland according to the Registrar-General numbered 115, but the Board of Trade gives 128 such deaths in Scotland. In none of the above instances does there appear to be ambiguity or difference in the headings.

GENERAL CONCLUSIONS TO PART II.

The foregoing examination of Blue-books and Official Returns relating to deaths from violence and unnatural causes in the United Kingdom shows that the present system of collecting and recording information concerning such deaths is far from satisfactory. We find that in their General Reports the Registrar-Generals of the three countries use different systems of classification; and that in England, and still more in Ireland, there is reason to doubt the accuracy and sufficiency of the material from which the Reports are compiled. We find that the Coroners' Returns issued by the Home Office are practically useless either as a measure of crime or from any other point of view. We see that the statistics of the various authorities concerned are inco-ordinated, and that they differ as regards their classifications, nomenclature, area, period of return, and other particulars, in such a way as to render their combined use difficult if not impossible. We see that one and the same class of deaths may be dealt with by two and even three different offices, yet their statistics are often highly inconsistent and leave great uncertainty as to the circumstances and causation of the deaths they record; and while there is thus overlapping in some directions, we shall see that there are important classes of deaths regarding which our knowledge is meagre and unreliable.

The reason for this state of affairs appears to be that the present system has grown up bit by bit, no comprehensive

scheme of dealing fully with deaths from violence as a whole ever having been established. The Registration Act of 1836, which led to the abolition of the old Bills of Mortality issued by the separate parishes, established in their place a scientific system of recording deaths from natural causes, which has gradually developed until it has made the Annual Report of the Registrar-General probably the most complete and valuable record of its kind published by any Government. But the section in this volume relating to deaths from violence has clearly received very little attention, and in form it scarcely differs from that presented in 1867. The Home Office Return has not been modified, except in unimportant directions, since 1868. In the absence of a comprehensive scheme, the public demand for protection against certain forms of violent death has led to recording of these deaths being undertaken by other Government Departments. Thus it has come about that we have full and valuable statistics in the reports on mining disasters, factory accidents, railway accidents, deaths from explosions, etc. Meanwhile the old system has continued side by side, presenting various anomalies and inconsistencies.

It might be said that, admitting the various errors and discrepancies to which I have drawn attention, no very serious state of affairs is shown, since in most cases reliable statistics and details are given in the special reports, and the worst that is happening is a certain amount of unnecessary duplication, wasteful and incomplete, but otherwise harmless. But this does not apply to the Report of the Local Government Board on deaths from starvation, etc., or to the statistics of homicide, or to the deaths of persons in occupations which do not come under the Factory Acts, or to deaths on privately owned railways, etc., or to vehicular accidents elsewhere than in public places. My main object, however, was not to dwell upon the inconsistencies for their own sake, but as a means of demonstrating the inadequacy and uncertainty of the whole present

system. For this purpose I necessarily have had to deal chiefly with classes of deaths which are covered by other special reports, and in regard to which, therefore, a change in the present system is relatively unnecessary. But the question becomes of vastly greater importance when we are dealing with deaths which are not the subject of special reports, that is, deaths that are included only in the Report of the Registrar-General, or in the Coroners' Returns, or in both. For though inaccuracies in the returns in the case of these deaths cannot always be demonstrated by methods of comparison, the inference is justified that if they exist in one class of deaths, they exist in the other. In Part III. I shall examine deaths of infants in bed with parents or others, deaths of children from burning, deaths under anæsthetics, and deaths from poisoning, with a view to showing how incomplete or unreliable is the statistical information regarding these fatalities, and how serious are the deficiencies in knowledge as to their essential causation.

PART III.

DEATHS OF INFANTS IN BED WITH PARENTS OR OTHERS; DEATHS OF CHILDREN FROM BURNING; DEATHS UNDER ANÆSTHETICS; DEATHS FROM POISONING.

DEATHS OF INFANTS IN BED WITH PARENTS OR OTHERS.

EVERY year a certain number of infants are found dead in bed with parents or others, most of the fatalities being ascribed to suffocation of the infant by the adult person, *i.e.* "overlying." In the statistics relating to these and similar fatalities, we find four descriptions used, which are not identical as regards the deaths they include. These are as follows:—

(1) "Deaths from suffocation in bed." Besides cases of suffocation by parents or others, this heading includes deaths of infants from suffocation while alone in bed; and deaths of elderly, drunken, paralytic, or otherwise helpless persons found suffocated in bed.

(2) "Deaths of children suffocated whilst in bed with parents or others," a description which does not differentiate between suffocation *by* parents and suffocation *with* parents, *i.e.* cases where the child has by its own movements slipped beneath the bedclothes or buried its head under the pillows, the presence of the adult in the bed being merely a concomitant circumstance.

(3) Deaths from "overlying,"¹ which may be taken

¹ This term is employed in the Report for Scotland, though "overlying" is generally regarded as being grammatically correct.

to mean exclusively deaths from pressure by another person.

(4) Deaths from "absorption of deleterious gas (conflagration excepted)," which is class 168 in the International List, and includes with overlying deaths from various forms of gaseous poisoning, asphyxia by carbon dioxide, sewer-gas poisoning, fumes from kilns, etc. As, however, the great bulk of the deaths classed under this heading are of infants under three months of age, I have assumed that overlying or suffocation in bed was by far the largest contributing cause, and have taken the figures, not as an actual record, but as an index of this mortality.

The employment of four different forms of terminology in the official statistics naturally renders comparisons difficult, and introduces a considerable element of uncertainty into any deductions which may be drawn. Nevertheless, I shall be able to show that there is at least a case for believing—

(1) That a considerable proportion of deaths ascribed to "overlying" are really deaths from natural causes, and

(2) That, while there is clearly a relation between overlying and overcrowding, many of these deaths do not result directly from overcrowding in the sense that parents have not sufficient room or means to provide separate cradles for their infants, but are due to the general adverse conditions which accompany overcrowding, and should be regarded as part and parcel of the increased infant mortality from disease and feebleness which characterises densely populated centres.

The following are the data available:—

England and Wales.—The Home Office records 1173 accidental and "open" verdicts of suffocation of children while in bed with parents or others, but without defining the word "children."

The Registrar-General, in his detailed tables of deaths from accident, records 1247 deaths of infants under 1 year of age, and 13 deaths of children between 1 and 2 years

of age, who were found suffocated in bed, but without distinguishing those in bed alone from those in bed with parents. In the earlier part of his Report (pages 234, 252, 270, and 288), the Registrar-General tabulates 1546 deaths (1348 under 1 year) from "absorption of deleterious gases (conflagration excepted)" in London, the aggregate of county boroughs, urban districts, and rural districts; and on page 306 he distributes these same deaths according to each quarter of the year. Thus the figures in the local and in the general classification do not refer exclusively to the same class of deaths.

The London County Council gives a valuable list of accidental and "open" verdicts of deaths of infants in bed with others, analysed according to the different Coroners' districts.

Scotland.—The Registrar-General for Scotland records 97 deaths from "overlying," of which 96 were of infants under 1 year. He also gives separately the deaths from this cause in seven of the largest towns in Scotland.

Ireland.—The Registrar-General shows 65 deaths from "absorption of deleterious gases (conflagration excepted)," of which 57 were of infants under 1 year. Forty-nine of these were in Ulster.

It will be seen, therefore, that except for Scotland we do not even know the number of deaths strictly due to overlying. The Home Office figure is probably the nearest for England and Wales, but it is the total of infants accidentally suffocated whilst in bed with parents and others. In order to arrive at cases strictly of overlying, we ought to deduct from this total the number of cases in which the infant by its own movements got beneath the bedclothes or buried its head under the pillows, for which the adult was in no way responsible. That a considerable number of such cases do occur may be inferred from the fact that the Registrar-General (who, for reasons given in Part II., probably under- than over-states the mortality) shows 1260 accidental deaths of children in bed. Deducting from this the Home

Office total of 1173 who were in bed with parents, we find that there were in England and Wales at least 87 deaths of infants accidentally suffocated while in bed *alone*. It may reasonably be concluded, therefore, that in a certain proportion of the cases returned as overlying, the presence of the adult in bed was only a concomitant circumstance and had nothing to do with the death. As a matter of fact, when an infant is found dead in bed with its mother, juries exhibit a distinct tendency to jump to the conclusion that it has been suffocated by pressure against her. I have been present at inquests where a verdict of overlying has been returned without even a post-mortem examination having been made, and thus the possibility of death from natural causes excluded (*v.* Statement by the late Mr Troutbeck, Appendix IV.). In other cases, the infant has been found some distance from the parent, and the jury have expressed their opinion that death was due to suffocation by the bedclothes, but they or the Coroner have introduced the word "overlying" in the verdict, apparently believing it to be the correct designation of such cases.

The Relation between Overlying and Urbanisation.

There is an enormous difference in the number of deaths from overlying in urban and rural areas. We may note this on a large scale by comparing England and Wales with Ireland. In England and Wales the death-rate of infants suffocated in bed with parents is 32 per million. In Ireland the death-rate from "absorption of deleterious gases" under 1 year is 13 per million, and assuming the deaths of infants suffocated in bed with parents to form the same proportion of these deaths as they do in England and Wales (1173 to 1348), the death-rate of infants so suffocated, in Ireland, is only 11 per million of the population. This is a very large difference, even when all allowance for inadequacy of investigation in Ireland is made.

In Scotland we get the following distribution of deaths definitely attributed to overlying:—

	Population.	Deaths from overlying.
Glasgow . . .	781,984	35
Edinburgh . . .	319,265	6
Dundee . . .	164,911	29
Aberdeen . . .	162,988	1
Paisley . . .	84,858	1
Leith . . .	80,214	4
Greenock . . .	76,337	1
Other districts . .	3,070,520	20
	4,741,077	97

It should be noticed that two-thirds of the total deaths occur in Glasgow and Dundee, though the aggregate population of these towns is not much more than one-fifth of the total population of Scotland. By far the highest rate is in Dundee, and, in view of my suggestion that many deaths ascribed to overlying are really due to natural causes, it is significant to note that the general infantile mortality rate there is much the highest of any town in Scotland, being 161 per thousand births, as compared with 123 in Glasgow, 109 in Edinburgh, 87 in rural districts, and 105·5 in all Scotland.

But while it is clear that deaths from overlying are far more numerous in overcrowded towns than in rural areas, I do not think the inference usually drawn that these deaths are due to insufficient room accommodation can be regarded as established. It is well known that housing conditions in many rural areas are far from satisfactory, and among large numbers of families who are very limited as regards room accommodation, the practice of taking infants to sleep with their parents is by no means infrequent. Yet deaths from overlying are quite exceptional.

We may examine this question further in the light of local statistics for England and Wales, though for this

purpose I have had to take deaths from “absorption of deleterious gases” under 1 year, which, as already explained, do not provide an absolute measure of the mortality, but can only be looked upon as an index. I have worked out the following rates from the Registrar-General’s gross figures, which again exhibit the enormous falling off of these deaths in rural districts and smaller urban districts :—

	London.	County boroughs.	Urban districts.	Rural districts.
Deaths from deleterious gases under 1 year, per million of population	69	55	23	14

The relative degrees of overcrowding in different types of areas may be exhibited by the following table from the Census Report of 1911, the proportions of persons housed in tenements with more than two occupants per room being taken as a measure :—

Occupants per room.	Proportion per cent. of the populations.			
	London.	County boroughs.	Urban districts.	Rural districts.
Over 2 but not over 2½	7·5	5·1	4·3	3·9
” 2½ ” 3	6·2	2·8	2·1	1·9
” 3 ” 4	1·7	·7	·6	·5
4 and over . . .	2·3	·8	·4	·3
	17·7	9·4	7·4	6·6

It will be seen that the difference in overcrowding between rural and urban areas is nothing like sufficient to account by itself for the difference in mortality. On the one hand, while overcrowding in the county boroughs

is only a little more than half that in London, the mortality from deleterious gases is not diminished in anything like the same proportion. On the other hand, comparing urban districts with county boroughs, overcrowding is less only in the proportion of 7 to 9, yet deaths from deleterious gases decline by nearly 60 per cent. Between urban districts and rural districts overcrowding is less only by 11 per cent., but the mortality diminishes by nearly 40 per cent. It is clear, therefore, that some cause other than, or additional to, simple lack of room accommodation must be looked for to explain the great difference between mortality from overlying in town and country. The evidence I am now going to bring forward at least suggests that a considerable proportion of the deaths ascribed to overlying are really due to natural causes, and that the reason why they are more numerous in densely populated areas is the fact that we have in those areas an infant population which is feebler and more liable to sudden and unexpected death from natural causes.

Overlying and Death from Natural Causes.

I have already mentioned that some Coroners will accept verdicts of overlying without having required any post-mortem examination to be made. But it must be remembered that even if such an examination has been made, there are various natural causes of death the post-mortem appearances of which are either indistinguishable from those of overlying, or may be so little marked as to be readily overlooked by a general practitioner who has not had special experience of pathology. In the vast majority of cases there are no characteristic distinguishing signs of death from overlying. Some of the older text-books mention signs of pressure, such as flattening of the nose, but in my experience these indications are extremely rare, and I believe this to be one of those text-book statements, originally made upon insufficient observation, and repeated from book to book. Actual heavy overlying of the child's

head by the mother's body is almost incredible, unless she were in a state of extreme drunkenness. What happens in real cases of overlying is that the mother begins to suckle the child, then goes to sleep, and the child is suffocated by pressure against the breast, the soft tissues of which do not flatten its nose. This accident cannot be attributed to overcrowding, and is just as likely to happen in the country as in towns.

Under these circumstances the only post-mortem signs of death from overlying are those ordinarily accompanying asphyxia, such as engorgement of the lungs and blueness of the face, which are indistinguishable from the appearances often met with in death from rickety convulsions and other causes vaguely certified under the term "debility." Even in broncho-pneumonia, the patches of consolidation in the lungs, if not well marked, may be overlooked by a general practitioner; and the parents may have failed to notice that the infant has been ill for a day or two, or may have regarded the symptoms as trivial and due to a cold.

It is interesting to note that deaths from overlying show a marked seasonal variation, exactly parallel with the mortality from broncho-pneumonia, infantile convulsions, and infantile mortality, as shown by the following statistics for England and Wales in 1912:—

	1st quarter.	2nd quarter.	3rd quarter.	4th quarter.
Broncho-pneumonia ¹ .	6613	3762	2312	4686
Infantile convulsions .	2770	2062	1766	2142
Infantile debility .	3397	2636	2404	2787
Absorption of deleteri- ous gases	483	334	318	411

¹ The figures include deaths at all ages, those for infants only not being available for the different quarters of the year.

In each case the sequence according to increasing mortality is 3rd, 2nd, 4th, 1st quarter. If we could deduct deaths from poisoning, from poisoning by sewer-gas, etc., which are not likely to vary much from quarter to quarter, the seasonal variation in the remaining deaths from overlying would probably be much greater. Conclusive inferences cannot, however, be drawn from these figures, since the explanation might be given that the parents are more likely to take the infant to bed with them for warmth during the winter months, and that more numerous and thicker bedclothes are then used. But—while admitting that these causes may play some part—in view of the fact that the most frequent motive for taking the child to bed is to suckle it, which would not vary between summer and winter, it seems difficult to accept those causes as sufficient to account for a decline of at least 35 per cent. between the figures for the 1st and 3rd quarters. I may point out here that if we had statistics distinguishing deaths of infants in bed with mothers alone, from those with fathers, sisters, brothers, or other persons, interesting light would be thrown upon the relation between deaths from overlying and suckling.

But in support of my suggestion that a considerable proportion of these deaths are due to natural causes, we have some very remarkable figures for London which are difficult to explain on any other hypothesis. The Annual Report of the Public Control Committee of the London County Council includes a table setting out for each Coroner's district the verdicts on children suffocated while in bed with parents or others. By combining this with the information given by the Home Office as to the numbers of inquests on children under one year of age, I have compiled the following table for the year 1910. It should be noticed that the first two areas are under the jurisdiction of the same Coroner.

Coroner's district.	Inquests on children under one year.	Verdicts of suffocation in bed with others.
South-Western . . .	111	1
Westminster . . .	23	0
Western . . .	133	22
Central . . .	271	68
North-Eastern . . .	283	73
Eastern and Tower . . .	282	48
South-Eastern . . .	152	37
Southern and Clapham . . .	148	12
Southwark . . .	49	13

The excessive disproportion in the first two areas, as compared with those which follow, will at once arrest attention. Previous to 1907, the deaths from overlying in these areas averaged about 25 per annum. They suddenly dropped to 2 in 1907; none in 1908; 2 in 1909; 1 in 1910; and 2 in 1911. In 1912 there was a change of Coroner. In 1913 the deaths from overlying rose to 13, and in 1914 they have jumped up to 20, thus nearly reaching the average prevailing before 1907.

The small number of deaths from overlying in these two districts cannot be attributed to better social conditions than in other districts, for they both include large poor-class areas, the South-Western extending over Wandsworth, Battersea, Tooting, and most of Lambeth; and Westminster including Soho and the Covent Garden neighbourhood. Probably the best Coroner's district in London from the social point of view is the Western, which consists of Kensington, Chelsea, Fulham, and Hammer-smith; yet there were 22 deaths from overlying in this district in almost the same number of inquests as in the South-Western and Westminster districts.

The only explanation I can suggest for the remarkable difference in these figures is that post-mortem examinations were more numerous and were more efficiently conducted

in the South-Western district and in Westminster than elsewhere during the years 1907 to 1911. It may be remembered that the late Mr Troutbeck, who was Coroner for the two districts, finding himself dissatisfied with post-mortem examinations made by general practitioners, adopted the plan of having practically all such investigations made for him by expert pathologists, a course which gave rise to considerable criticism and eventually led to the appointment of the Departmental Committee on Coroners. In the rest of London, Coroners are accustomed to rely upon general practitioners, and only obtain expert assistance in exceptional cases. It is understood that the present Coroner for these districts has not followed Mr Troutbeck's procedure. If we look merely at the numbers of post-mortem examinations made during the years 1907 to 1911, we find from the London County Council Report that Mr Troutbeck used to require autopsies to be made in 96 per cent. of the inquests held by him; whereas in the rest of London post-mortem examinations were only made in about 60 per cent. of inquest cases. In 1912 the post-mortems in the combined South-Western and Westminster districts fell to 64 per cent. of inquests held. In the foregoing figures hospital cases have been deducted, and it must be remembered that they refer to post-mortems upon all classes of persons. There is no means of determining the numbers of post-mortems made exclusively on the bodies of infants. (See also note on p. 65.)

These figures appear to show that in districts where the proportion of post-mortems is high, and where they are conducted by expert pathologists, very few cases of deaths attributed to overlying occur, the inference being that general practitioners sometimes overlook the indications of death from natural causes if they are not distinct. This is not necessarily a reflection on their skill in other branches of medicine. I have already referred to the difficulty of detecting some cases of broncho-pneumonia except by an expert. Death from convulsions due to

rickets may be even more difficult to recognise, yet in many cases an expert examination of the bones would reveal the changes indicative of this disease. But one knows from experience that most general practitioners do not do more than examine the condition of the internal organs.

There is therefore at least a case for suggesting that a considerable proportion of deaths returned as having been caused by overlying were really due to natural causes, and the reason why they are more numerous in densely populated areas is not the direct lack of room accommodation in those areas, but the fact that the infant population in those areas contains a much larger proportion of feeble and debilitated infants owing to the general unhygienic influences associated with overcrowding. During recent years there has been a very considerable fall in infant mortality in large towns, and *pari passu* there has been a corresponding substantial decline in deaths from suffocation in bed.

Apart from the importance of any knowledge which tends to throw light upon the causes of infant mortality, this question has another aspect. The parents who come into court in these cases are almost always in a state of great distress. The suggestion that any but the most minute proportion of these children have been deliberately killed for the sake of insurance money, I believe to be wholly without foundation. But I feel strongly that it is an exceedingly cruel thing to leave a mother with a life-long impression that she has herself killed her infant unless there is the clearest evidence of the fact.

Overlying and Inebriety.

It is sometimes said that a considerable number of deaths from overlying occur when the mother is in a state of drunkenness. My own experience, however, leads me to doubt very much whether inebriety plays any appreciable part in bringing about this mortality. I know of no statistical investigation supporting the view, except one

made by the Registrar-General twenty-five years ago, which tended to show that a rather higher proportion of the deaths occurred on Saturday nights than at other times, and this was attributed to more drunkenness on those nights. But Coroners do not now notice an excess on Saturdays, and in any case conclusions drawn so long ago do not necessarily hold good at the present time. A clause was introduced into the Children Act of 1908 providing that where a child is suffocated in bed with a drunken adult, that adult is liable to punishment; but although this Act has been in force for seven years, I am unaware of any prosecutions which have been instituted under it.

The most satisfactory method of measuring inebriety in different districts is by means of convictions for drunkenness, and if we could have compared these with deaths from overlying in the same districts, it would have been possible to see if there is any striking relation between them. This, however, cannot be done, for, although convictions can be obtained from the Criminal Statistics for Counties and County Boroughs, no local information is available as to deaths from overlying. The death-rate from alcoholism in all urban districts is about 15·5 per million, and in rural districts 11 per million. These rates, however, are so exceedingly unreliable that no inferences can be drawn from them, and it is probable that a larger number of deaths from alcoholism escape observation in the country than in towns.

Apart from the intrinsic interest of this question, it should be noted, in support of the main argument of the Thesis, that the investigation has been hampered throughout by the vagueness of the terms used in the six different sets of statistics examined; the absence of local information; the lack of knowledge as to the number of infants who were in bed with mothers alone as distinguished from other persons; the reason why the infant was taken to bed with the adult; the cases in which there was evidence that the mothers were drunk; the number of cases in which a

post-mortem examination was made; and other important particulars.

DEATHS OF CHILDREN FROM BURNING.

In an article in the *Lancet* for 8th November 1913, I drew attention to the difference in mortality of boys and girls from burning, and showed that while in boys the mortality reaches its maximum about the age of 3, and then falls abruptly and rapidly, in girls it continues to rise to the age of 5, the fall thereafter being neither so great nor so rapid (*v.* Appendix V.). I brought forward reasons for believing that this difference was due to the *style* of the clothing worn as distinguished from the material, the decline in boys taking place about the age when they are put into male attire, whereas in girls dressed in petticoats, skirts, and pinafore, it does not occur until they reach an age when they begin to take care of themselves.

Further information would probably yield an even stronger case for this view. For the particular purpose, it is not distinction between sexes we require, but distinction between styles of clothing. If we could separate from the statistics the number of boys who were wearing female clothing at the time of their death, and add them to the girls, we should almost certainly find a still greater difference between the two curves. But the official returns do not enable this to be done, nor can one even determine from them the exact numbers of boys and girls who are burnt to death by their clothes catching fire. The following statistics are given by the Registrar-General for 1912:—

Burns.	Males.	Females.
By lamp accident	9	38
By flannelette clothes	17	62
By clothes (not otherwise described) .	165	441
Otherwise (or not stated how)	287	572

It will be noticed that the largest sub-division is under the heading “otherwise (or not stated how),” but it may be

assumed that most of these deaths were due to clothes catching fire, since the great bulk were in children. The Registrar-General, however, states in a footnote that the heading included deaths from bursting of a steel ingot mould, and burns by boiling tar, celluloid collar, sulphuric acid, and carbolic acid. This further illustrates the way in which deaths from very different causes are thrown into the same class, deaths from corrosive acids being only in popular parlance due to burning; and it renders it impossible to determine absolutely the number of persons who were burnt to death from accidental igniting of clothing.

Another point in which information is lacking is the number who were wearing night clothing and those who were in day attire.

The Flannelette Question.—During recent years much attention has been directed towards the part played by flannelette in bringing about these deaths, and measures have been taken, or proposed, for restricting its sale or requiring it to be subjected to processes for reducing its inflammability. But while there is no reason to doubt that a large number of children who are burnt to death are wearing flannelette, or that it is highly inflammable, there is practically no statistical evidence showing the relation between flannelette and mortality, and no evidence that any other material likely to be purchased by the poor as a substitute for flannelette would not be equally or almost as dangerous if worn in the same way. In order to measure the actual influence of flannelette, we ought to know the proportions of children in the population who are wearing that fabric and those who are wearing other materials, and then to compare with these the proportions burnt to death in each class. Of course, exact knowledge on the first point is unattainable, but I have made inquiries from a number of sources and find that the great bulk of the children among the poorer classes wear flannelette. For example, Miss Zanetti, one of the Poor Law inspectors in Manchester, writes to me that “it is worn by children in almost every

house I visit." In a district in South London I was told that at least 50 per cent. of girls and little boys were wearing day clothing of flannelette, and probably over 90 per cent. were wearing night clothing of the same material.

In view of these facts, it is natural that a large proportion of those who are burnt to death should be wearing flannelette, and the inference that if they had been wearing similar garments composed of other material, or even of "non-flam," the fatalities would not have occurred, cannot safely be drawn. Such statistics as there are, actually appear to indicate the relative safety of flannelette. For example, the Registrar-General only shows 79 deaths while wearing flannelette out of a total of 1591. Of course, this is because he is not getting sufficient information, and it affords another instance of the way in which valuable knowledge collected at inquests is wasted. Even if we turn to special inquiries, we find that the statistics are not conclusive as to the particular danger of flannelette in comparison with other similar materials. In a petition which was presented to the Home Office in 1912, asking for legislation for the purpose of distinguishing between inflammable and non-inflammable materials, it was urged in support that out of 384 deaths from burning between 3rd June 1911 and 2nd March 1912, 133 were of persons wearing flannelette, a little more than one-third, yet it is certain that far more than one-third of female children and boys in female clothing are wearing flannelette.

Further information in the direction indicated might lead to different methods for attempting to reduce, not only the deaths from this terrible cause, but also the larger number of children who are crippled or disfigured for life. Experiments have shown that the processes for rendering flannelette non-inflammable are not very satisfactory, and most of the effect is lost after a few washings. In attacking the use of this material, strong trade opposition has to be faced, and, at the best, the only result would

be the substitution of some other material probably almost as dangerous if worn in the same way. On the other hand, if an overwhelmingly strong case can be made out that the style of the clothing rather than the material is responsible, efforts should be directed towards inducing parents to dress young children and girls up to, say, 12, in what is known as "drill" costume, consisting of knickers and short tunic usually made of serge. This would be more hygienic and desirable from every point of view, and I am informed that its cost would be no greater than that of the garments at present worn. There are already several elementary schools in which the wearing of a school costume of this sort, if not obligatory, is encouraged by all possible means, and this movement would receive a strong impetus if it could be shown that it was the best means of preventing death from burning.

DEATHS UNDER ANÆSTHETICS.

There are reasons for believing that deaths during the administration of anæsthetics have increased considerably during recent years, and it is a fact that the recorded mortality has doubled since 1903. The question was investigated by a Departmental Committee in 1910, and in their Report they say, after noting the deficiencies in the evidence: "Still, when all these sources of error are allowed for, we have the fact that there is an increasing number of deaths under anæsthetics, and that in the opinion of experts *a certain number of these deaths are due to preventable causes.*"

It is not easy to come to definite conclusions regarding these deaths, since reliable knowledge as to their number, causation, and attendant circumstances is extremely scanty. Unfortunately, the defectiveness of the information is frequently not realised, and statements are made as to the death-rates and relative dangers of different kinds of anæsthetics with an assurance which is certainly not justified in the present state of knowledge. The follow-

ing are the points upon which further information is required:—

The Number of Deaths.—We have no real knowledge of the mortality caused by administration of anæsthetics. There is no obligation upon medical men to report a death under anæsthetics, as such, to the Registrar or to the Coroner; and when a death is reported to the Coroner he is not bound to hold an inquest. Practice in this respect differs within wide limits, some Coroners holding inquests in every case, and others only if there are allegations of negligence. Medical practitioners, both to avoid publicity and to spare the relatives of the deceased, sometimes attribute the death to the disease or operation, and give a certificate of death without mentioning the anæsthetic. There is no doubt, therefore, that the Registrar-General's figures appreciably understate the mortality from this cause. In 1912 the recorded deaths under anæsthetics in England and Wales were 283. In Scotland, under a different system of investigation, the number was 55. In proportion to the populations, the same rate would have given 424 deaths in England and Wales. There does not appear to be any record of the mortality in Ireland.

The Relative Dangers of Different Anæsthetics.—We have no exact knowledge as to the relative mortality caused by different kinds of anæsthetics. The Registrar-General classifies these deaths according to the anæsthetic used, but since no less than 102, out of his total of 283 cases, appear under the heading "kind not stated," reliable comparisons cannot be made. Dr Flemming has recently described the results of an independent investigation he made.¹ His only source of information was reports of inquests in the newspapers, but out of 700 cases which he collected, in only 542 was mention made even of the particular anæsthetic employed. It may be said that the present views of the relative dangers of different anæsthetics have little more than individual experience to support them.

¹ *Proceedings of Royal Society of Medicine*, 1914.

The Cause of Death.—Although many of these deaths are carefully investigated, sometimes with distinctly beneficial results,¹ there is no statistical record enabling distinction to be made between deaths directly due to the anæsthetic, deaths due to the disease or injury, and deaths due to the operation. Of course, it is impossible sometimes to differentiate between these factors, but in other cases death can be quite definitely attributed to one or other of them.

Deaths in Hospitals and in Private Practice.—Even when allowance is made for the larger number of operations performed in hospitals, the number of deaths reported from hospitals to Coroners seems to be wholly disproportionate to the number reported by private practitioners. Mr Troutbeck stated that out of 174 deaths under anæsthetics reported to him in six years, only 3 came from private practice. Dr Waldo has emphasised the same point. The reasons why surgeons and practitioners may be reluctant to report private cases have already been mentioned.

Administration of Anæsthetics by Unregistered Persons.—This is a serious abuse, but the number of fatalities which result from it is unknown. Attention was called to the matter at the meeting of the British Association in 1910, when Dr Waller moved, and Sir Frederic Hewitt seconded, a resolution calling for legislation “in view of the numerous deaths from anæsthetics administered by unqualified persons.” The facts brought forward at this meeting indicated that the evil is of considerable extent.

Recommendations of the Departmental Committee.—The Departmental Committee recommended that “every death under an anæsthetic should be reported to the Coroner, who, after inquiry, should determine whether it is desirable to hold an inquest or not.” They also ex-

¹ Dr Waldo, the Coroner for the City, has published some interesting figures showing the decline in deaths under anæsthetics in certain large hospitals since he made a practice of holding inquests on all such deaths in those hospitals.

pressed the opinion that there is still much to be learnt about anæsthetics and their administration, and advised the appointment of a small standing scientific committee to collect information on the subject, but no steps have yet been taken to give effect to their recommendations.

DEATHS FROM POISONING.

The Registrar-General classifies accidental deaths from poisoning according to the kind of poison responsible, but gives no information as to the circumstances which led to the poison being taken. Legislative efforts have been made to limit accidental poisoning by the establishment of the Poison Schedules, and by authorising the Pharmaceutical Society to make regulations for the keeping and sale of poisons. But there is no means of measuring the effect of these regulations, or the extent to which they are observed, or of ascertaining the directions in which they appear to require strengthening or enlarging. There is, however, no doubt that a considerable number of deaths can be traced to failure to observe some of the statutory regulations, such as dispensing the poison in a special kind of bottle, keeping it in the surgery in a place apart from other drugs, etc.

In addition to classification according to kind of poison, it would be quite feasible to classify deaths, first according to the class of person killed, *i.e.* whether one engaged in the manufacture, sale, or handling of poisons, or whether another person; and, secondly, according to the character of the accident, which might be—mistake in dispensing by chemist or vendor; mistake by doctor or nurse; mistake by other person; overdose of medicine or poison accidentally self-administered; result of drug habit; admixture of poison by food; sewer-gas poisoning; trade poisoning, etc., etc. All these particulars are—or should be—obtained at the inquests.

As regards food poisoning, information might be given

distinguishing the kind of food, meat, fish, etc., responsible, and whether preserved or fresh.

There has been a remarkable increase in mortality from coal-gas poisoning in recent years, accidental deaths having risen from 16 in 1903 to 58 in 1912, and suicidal from 10 to 125 in the same period. No information, however, is available as to the causes of this increase.

Note on deaths from overlying in France and Germany :—Since the foregoing was written I have made inquiries into deaths from overlying in France and Germany. In France all the post-mortems on deaths from violence or unknown causes are conducted by expert pathologists appointed by the State, who report to the magistrates in suspicious cases. Deaths from overlying are rare. In Paris, for example, with a population of 2,847,229, there were, in 1911, only thirty-six deaths of infants under one year of age ascribed to “absorption of deleterious gases.” Dr Vibert called attention twenty years ago to the great difference in the death-rates from this cause in England and France, and suggested that the English figures were probably unreliable (see *Annales d'hygiène publique et de médecine légale*, Janvier 1895). In Germany also deaths from overlying are very few. This is generally attributed to the greater use of separate cradles for infants; but here again the fact must not be lost sight of that the autopsies are in the hands of expert pathologists.

PART IV.

SOME SUGGESTIONS FOR THE BETTER INVESTIGATION AND RECORDING OF DEATHS FROM VIOLENCE AND UNNATURAL CAUSES.

THE foregoing analysis has shown that there are classes of deaths of which our knowledge, both statistical and otherwise, is seriously inadequate. The reason why these deaths have received comparatively little attention is probably the existence of a somewhat arbitrary line separating deaths of which the public health authorities take cognisance from those which come within the sphere of other authorities, and from the scientific point of view are dealt with under forensic medicine. The Medical Officer of Health will investigate infant mortality from overcrowding or impure milk supply, but he would probably consider that detailed inquiry into the essential causes of death from overlying or burning was outside his province and formed one of the functions of the Coroner. Lead poisoning as a result of contaminated water supply is within his sphere, but lead poisoning in association with criminal abortion he would regard as a matter either for the police or the Coroner. From the point of view of the community, however, no distinction can be drawn between these classes of deaths, and reduction of mortality is fully as desirable in one case as in the other.

It cannot, however, be said that the methods of investigating violent deaths from the point of view of prevention are anything like so satisfactory as those adopted in

strictly public health matters. A Coroner has no official means of bringing pressure to bear upon any preventable cause of death he may discover, and a jury's "rider" does not form part of the verdict, and has no legal force or significance whatever. This probably arises from the fact that when Coroners were originally created there was no idea that they should play any part in prevention of deaths. The office is very ancient, and the original function of the Coroner was to collect the King's revenues, his object in inquiring into a death being to ascertain whether the deceased was an outlaw or a felon, in which case his property escheated to the crown. Hence we have the anomaly that while a full inquiry is conducted into deaths from violence and unnatural causes, practically no subsequent use is made of the information for public health purposes. But this is the direction, in the modern social scheme, in which Coroners could find their greatest usefulness. Escheat has long since been abolished; criminal investigations are practically always conducted by the police even though ostensibly the inquiry is in the hands of the Coroner, and the Coroner's court is singularly ill adapted for the detection of crime, as more than one recent case has shown; claims for compensation, etc., are settled entirely by other courts. Under these circumstances, if prevention of deaths is not now regarded as the main purpose to be served by inquests, the inquiry becomes of relatively little value. For this object it is essential that all records should be collected and collated.

The information obtained at inquests could be rendered available by requiring Coroners to issue annual reports such as are published by medical officers of health, school doctors, factory inspectors, and others. But a better plan might be for all records to be sent to a central office, where they could be further analysed. Such an obligation would probably react beneficially upon the Coroners themselves, by tending to reduce the number of cases in which vague verdicts such as "accident" or "violence" were returned.

The work of analysing the records would probably best be undertaken by the Registrar-General, though it might be performed by the Home Office, or by the Research Committee under the Insurance Act. The section in the Registrar-General's Report dealing with deaths from violence could then be made a comprehensive and authoritative source of information upon all such deaths except those in mines, railways, and factories, which are already fully examined in special reports of other Departments. The system of classification could be revised, and the deaths distributed according to locality, class of persons, and causation as far as possible. Special investigations could be conducted from time to time into any particular form of death which does not at present come under the purview of any Department. The Local Government Board Report on deaths from starvation and privation could be transferred to the Registrar-General or other authority selected, and could be made more complete than is the case at present. The Home Office Report on Coroners' verdicts might be dropped, since it is of very little value in its present form, or might be reduced to a mere summary to be obtained from the Registrar-General.

It has been suggested to me—I refer to the point only because the suggestion was from official sources—that the task of examining 37,000 records of inquests would be too great for the Registrar-General to undertake. But it would not be necessary to examine anything approaching this number. In the first place, some 15,000 are verdicts of natural death which would simply be dealt with in the first part of the volume. Again, several thousand deaths from factory, railway, and mining accidents would be left for other Departments to examine if necessary. It might also be desirable to hand over all those relating to vehicular accidents to the Home Office, to form the basis of a special enlarged report. Thus the number left would be comparatively small. If the verdict was clearly stated on the front page of each record, it would be a simple matter to pick

out those relating to a particular form of death for further investigation; such questions, for example, as the relation between suckling and overlying, or between burning and type of clothing, could be determined without difficulty.

Most of the facts stated in the foregoing pages have at different times been brought before the Departments concerned, and the Registrar-General has adopted in his last report some of the less important suggestions made to him. But the correspondence and interviews kindly given leave a strong impression of lack of co-ordination between different Departments under the present system. In calling the attention of two offices to a discrepancy between figures relating to the same class of deaths, I have received two different and sometimes quite inconsistent explanations of the fact. The difficulty of getting further co-ordination appears to arise from the reluctance of each office to take any action which might have the appearance of interfering with another Department. Under these circumstances, and if the views I have expressed seem justified, it might be desirable to press for the appointment of an Inter-Departmental Committee to consider the whole question. The suggestions I have ventured to make may or may not be practicable, but at least there appears to be a case for believing that in certain forms of death from violent and unnatural causes we have a field for investigation, and an opportunity for saving human life, which has hitherto been relatively neglected.



APPENDICES.

APPENDIX I.

DISTRIBUTION OF INQUESTS IN URBAN AND RURAL AREAS.

(Extracted from "Amendment of the Law relating to Coroners and Inquests," *Trans. Med.-Leg. Soc.*, vol. x.)

THE following table, compiled from the Registrar-General's figures, shows the percentage of inquests held in urban and rural districts respectively. The towns are the twenty-four with the largest populations in England and Wales, and have not been selected in any way. The rural areas are chiefly the rural parts of Cambridgeshire, Cumberland, Derbyshire, Devon, Dorset, Durham, Essex, Herefordshire, Hertfordshire, Norfolk, Notts, Suffolk, Warwickshire, Yorkshire, and Carmarthenshire.

	Total deaths from all causes	Percentage of deaths from violence.	Percentage of inquests held.
24 largest towns .	132,505	4·1	9·9
23 rural districts .	77,890	3·9	5·5

The percentage of deaths from violence may be taken as a rough index of the general need for inquests, and it will be noticed that the proportion is practically the same in both town and country. Yet the percentage of inquests held in urban areas is nearly twice as high as that in rural districts.

From the next table, which has been compiled from the Home Office Report, we learn that the excess of inquests in urban districts is entirely made up of inquests which terminate in verdicts of natural death. The urban figures in the table relate to fourteen of the seventeen largest towns in England, three in which special conditions prevail being reserved for subsequent consideration.

	Total cases reported to Coroner.	Percentage of deaths from violence.	Percentage of inquests held.	Percentage of natural deaths in <i>inquests held.</i>
14 large towns	13,573	37·9	80·6	49·5
40 rural areas	4,484	36·3	49·2	24·9

Here also the percentages of deaths from violence differ very little, but while in the towns 20 per cent. of the cases reported are dismissed after preliminary inquiry, in rural areas practically 50 per cent. are so dealt with. In correlation with this we see that in towns one-half of the inquests held result in verdicts of natural death, whereas in rural areas only one-quarter of the inquests terminate in this way. These figures indicate that in country districts the Coroners tend only to hold inquests in which there is some suspicion of violence; in towns they inquire into a large number of deaths in which there is no suspicion, but merely the pathological cause is unknown. The explanation of the difference is probably to be found in the greater distances to be travelled in the country and in the personal circumstances of the Coroner. Most rural Coroners are part-time officers, frequently solicitors or medical men in busy practice. The salary attaching to the office is not large, and to travel a long distance, arrange for the attendance of witnesses, jury, etc., may mean a serious interruption of other work. Under these circumstances Coroners are apt to omit holding inquests except in cases of clear necessity. On the other hand, the Coroner in a large town is usually a whole-

time officer; he probably has to be at his court on most days of the week, and he may hold perhaps half-a-dozen inquests at one sitting. Additional cases do not therefore add proportionally to his work, and he will hold inquests which in many cases would be deemed unnecessary in the country.

In support of this view there is the fact that many inquests, especially in towns, are exceedingly perfunctory inquiries. This is established by the evidence given before the Departmental Committee on Coroners by Mr Ollis, Chief Officer of the Public Control Department of the London County Council. Mr Ollis said: "Some time ago we had cause for suspicion with regard to the practices in one of the districts, and an officer of the Council went as a member of the public into nearly all the Coroners' courts of London, where he carefully watched the proceedings. He attended 23 different courts, and at those 23 different courts in all 97 inquests were held. In one court as many as 12 inquests were held on the same day, and the whole time of the court occupied on those inquests amounted to 2 hours and 10 minutes, or an average of $10\frac{3}{4}$ minutes per inquest. That, I think, was the worst case. But in a number of other cases inquests were grouped, and the time spent upon an inquest did not indicate that any public good was really served by the inquest being held."

There is another aspect of the matter which cannot be ignored. In the preceding table I have given the statistics for fourteen of the seventeen largest towns in England. The corresponding figures for the remaining three are as follows:—

	Total cases reported to Coroner.	Percentage of deaths from violence.	Percentage of inquests held.	Percentage of natural deaths <i>in inquests held.</i>
3 large towns .	3800	40·3	59·3	25·4

It will be noticed that these figures do not differ markedly from those of rural areas where probably only really necessary inquests are held. But, compared with the fourteen towns, the percentage of inquests held shows that the proportion of cases dismissed after preliminary inquiry without inquest is more than double. The difference between these two sets of towns is that in the first the Coroners' salaries are open to revision (usually quinquennial) on the basis of a rate per inquest; in the second set the Coroners are paid fixed salaries which are independent of the number of inquests held.

Since only sensational inquests are reported in the newspapers, the general public are more or less unaware of the large number of really trivial cases upon which inquests are held, a great proportion of which could undoubtedly be avoided if a little more efficient preliminary inquiry were conducted. It is not only the expense and waste of time which have to be considered, but the fact that relatives of the deceased are put through the painful ordeal of a public examination, and are often required to visit and identify the body in the mortuary where other bodies in various stages of putrescence may be lying.

APPENDIX II.

THE REGISTRAR-GENERAL'S CLASSIFICATION OF DEATHS FROM ACCIDENT AND NEGLIGENCE, 1912.

1. In Mines.

(a) COAL MINES.

Fall of coal, stone, etc., on. Crushing. Fall in pit or shaft. Fall (*not otherwise described*). Machinery. Wagon, train, etc. Tub. Blasting. Explosion of gas (Cadeby Mine disaster). Explosion of fire-damp. Explosion (*not otherwise*

described). Burn or scald (*manner not stated*).
Drowning. Carbon monoxide. Electric shock.
Otherwise (*or not stated how*).

(b) OTHER MINES.

Fall of stone, wood, etc., on. Otherwise (*or not stated how*).

(c) QUARRIES, EXCAVATIONS.

Fall of stone, slate, etc. By falling.
Machinery. Otherwise.

2. Vehicles and Horses.

(a) ON RAILWAYS.

Run over on line. Collision. Carriage, etc.,
off rail. Fall from carriage or engine. Fall
(*not otherwise described*). Crushing by carriage
or engine. Fall of heavy substance on. Other-
wise (*or not stated how*).

(b) OTHER VEHICLES MECHANICALLY PROPELLED.

Electric Tramcar. Motor car. Motor cab.
Motor omnibus. Motor van, etc. Motor cycle.
Steam wagon, etc. Traction engine. Aero-
plane. Motor vehicle (*other or undefined*).

(c) HORSE-DRAWN VEHICLES AND HORSES.

Wagonette. Carriage. Dogcart, trap. Omni-
bus. Cab. Van, wagon. Dray. Cart. Horses.

(d) OTHER AND UNDEFINED VEHICLES.

Carriage. Omnibus. Tramcar. Cab. Van,
wagon. Dray. Bicycle, tricycle. Other.

3. Ships, Boats, Docks, etc.

Fall of heavy substance on. Crushing. Blow.
Fall from rigging. Fall into hold. Fall into
dock. Fall (*not otherwise described*). Machinery.
Burns, scalds. Otherwise.

4. Building Operations.

Fall of material. Fall from roof, scaffold
ladder. Machinery.

5. Machinery.

In metal works. In textile factories. Electrical machinery. In other factories. Agricultural machinery. Lift. Other machinery.

6. Weapons and Implements.

Gunshot wound. Cut, stab.

7. Conflagrations, Burns, Scalds, Explosions (*not in Mines, Ships, etc.*).

Conflagration. Burn, corrosion—by lamp accident; by molten metal; by molten slag; by flannelette clothes; by clothes (*not otherwise described*); otherwise (*or not stated how*). Scald, otherwise (*or not stated how*). Explosion—of chlorate of potash drying bed; of gas (*not otherwise described*). Otherwise (*or undefined*).

8. Poisons and Poisonous Vapours.

Food poisoning. Ptomaine poisoning. Ammonia. Hydrochloric acid. Sulphuric acid. Carbolic acid. Opium, morphia, laudanum. Veronal. Alcohol. Carbon monoxide. Coal gas. Gas fumes (*other or kind not stated*). Others (*or kind not stated*).

9. Drowning.

Bathing. Sliding and skating. Boat upset, fall overboard. Collision. Otherwise (*or not stated how*). “Found” (open verdict).

10. Suffocation.

In bed. Food or other foreign body. Smothered by heavy substance. Otherwise (*or not stated how*).

11. Falls.

Diving. From window. Down stairs. In room. Down lift-well. Otherwise (*or not stated how*).

12. Weather Agencies.

Lightning. Sunstroke. Gelatio and exposure to cold.

13. Otherwise or Not Stated.

Swallowing foreign body. Fall of heavy substance on. Blow. Fighting, wrestling, etc. Fracture. Injury by bull or cow. Injury by horse other than in sec. 2 (c). Football. Strain. Electric shock. Cricket ball. Other wounds (*not by weapon or implement*). Strangulation. Starvation. Accident (*not otherwise described*). Violence (*cause or kind not stated*).

APPENDIX III.

INQUEST VERDICTS OF SUICIDE AND "FELO DE SE."

IN 1910, in the five Coroners' districts of Manchester, Newcastle, Stockton Ward, St Albans, and Cranbrook (Kent), there were 115 verdicts of suicide, of which 58 were verdicts of *felo de se*. In the remaining Coroners' districts in England and Wales (about 325) there were 3414 verdicts of suicide, of which 71 were verdicts of *felo de se*. In several instances abrupt changes in the statistics follow a change of Coroner. The succeeding table, for example, shows the numbers of such verdicts in Manchester, where the present Coroner was appointed in 1903:—

Year.	Total suicides.	Verdicts of <i>felo de se</i> .	Year.	Total suicides.	Verdicts of <i>felo de se</i> .
1899	42	0	1906	67	21
1900	45	0	1907	66	22
1901	48	0	1908	60	23
1902	57	1	1909	69	25
1903	64	0	1910	52	23
1904	58	2	1911	69	29
1905	82	33	1912	71	29

It is clear, therefore, that the verdict of *felo de se* depends more upon the idiosyncrasy of the Coroner than anything else. As a matter of actual fact, it is probable that the Coroners for Manchester and the other exceptional districts are right in finding that only from one-half to two-thirds of the persons who commit suicide are really insane in the ordinary sense of the term. But most Coroners will accept the very slightest evidence of abnormal conduct as justifying a verdict of "temporary insanity," and since the verdict of *felo de se* is looked upon as conveying a grave social stigma, the question arises whether it is not now mere pedantry to insist upon the rigidly accurate verdict which has long ceased to entail forfeiture of possessions or other special consequences. The Coroners' Committee recommended that this verdict should be abolished, and the finding should simply be that the deceased died by his own hand, stating the manner of his death.

APPENDIX IV.

OVERLYING AND POST-MORTEM EXAMINATIONS.

(From the Report of the Departmental Committee on the
Law relating to Coroners and Inquests.)

THE following evidence was given by the late Mr Troutbeck when asked if he thought many post-mortems should be conducted by a specially skilled man:—

"Yes. Take the case of those so-called overlaying cases. Twenty years ago there certainly was an idea that if a child was found dead in bed between its parents it was overlain, and I would get written opinions given positively that it was so from the medical man called in before he had made his post-mortem examination. I used to have a great deal of evidence to that effect: that the child had been suffocated by external means. I have had an opinion

like that given only a few weeks ago by an experienced man—a police surgeon—who was called in after death. He gave me a written opinion that the child had been suffocated by clothes put over its head. I went most carefully into it, and could find no evidence of that kind. Dr Trevor,¹ I think, made the post-mortem examination. He found a perfectly natural explanation of the death, and I found, on examining this doctor, that it was only surmise. Although the opinion was given without qualification, it was only surmise. He had no authority really for making it.”

APPENDIX V.

MORTALITY OF CHILDREN FROM BURNING.

DURING the years 1906 to 1911 inclusive, 4884 infants and children died from burning caused by ignition of clothing, lamp accidents, and, in the words of the Registrar-General, “otherwise or not stated how,” the great bulk of which fatalities may be assumed to have been due to the catching fire of clothing. Distributed according to age, they were as follows:—

Ages.	Boys.	Girls.	Ages.	Boys.	Girls.
0 to 1	214	234	4 to 5	368	775
1 „ 2	443	466	5 „ 10	389	1427
2 „ 3	840	623	10 „ 15	47	369
3 „ 4	580	729	15 „ 20	33	261

In the subjoined chart (reproduced from the *Lancet* of 8th November 1913), a small correction has been made for the slightly greater number of boys at the earlier ages than girls.

¹ Pathologist to St George's Hospital.

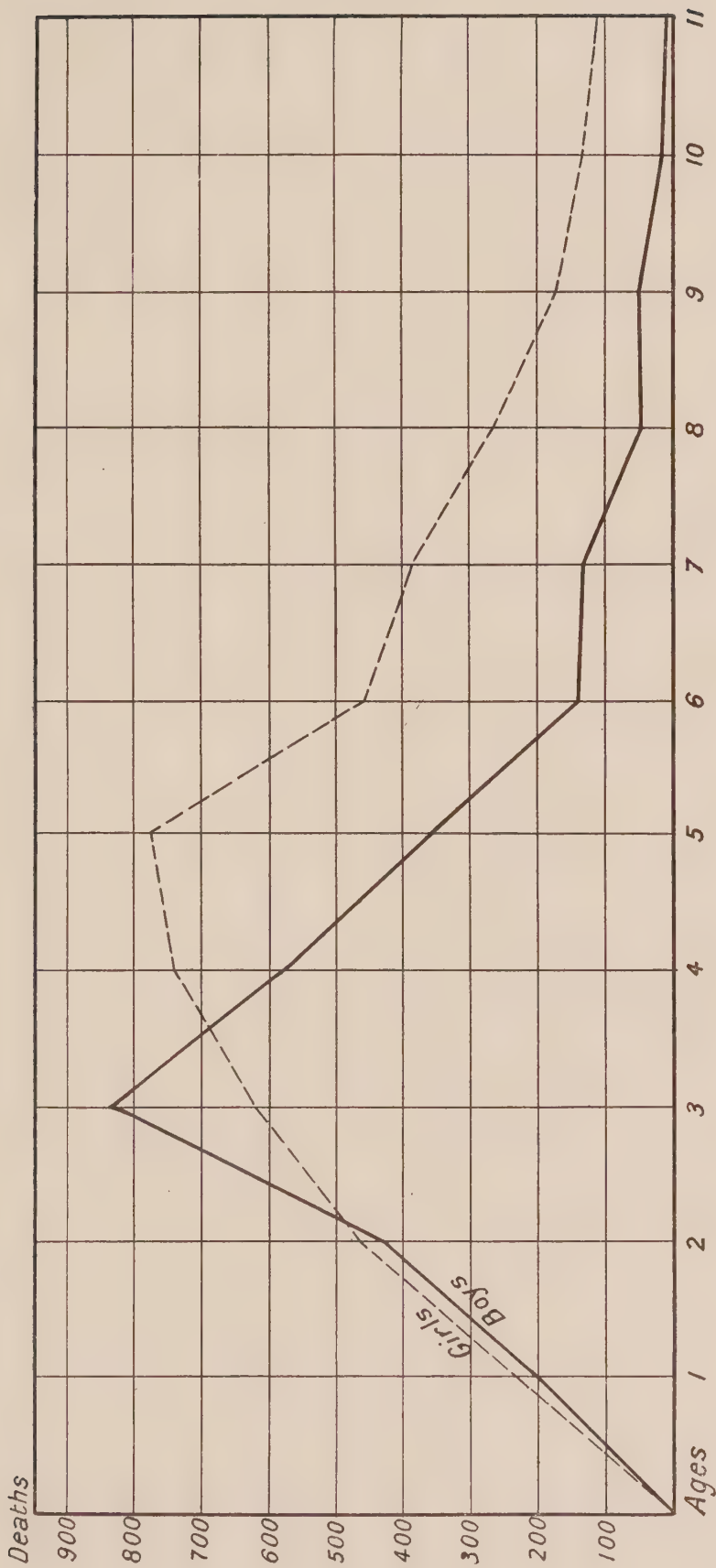


CHART SHOWING DEATHS FROM BURNING AT AGES 1 TO 11, ENGLAND AND WALES, 1906-1911.

(I am indebted to the Registrar-General for the details of figures for ages 5 to 11.)

It will be seen that in the case of boys the mortality increases rapidly up to the age of 3, drops nearly as quickly to the age of 6, and then gradually falls away almost to nothing. The mortality of girls continues to increase up to the age of 5, and then declines, though to not nearly the same extent as among boys. It remains higher through the ages of adolescence, being between the ages of 15 and 20 about eight times as great.

Miss Synge, in her admirable book on children's clothing, has drawn attention to the excessive number of garments worn by children of the poorer classes. Of her experience in schools she writes: "The quantity of material used on the children was pitiful. Early Victorian patterns were for the most part used, and underneath the pleats and gathers the children looked swollen and shapeless. . . . The girls are the worst off. First they wear a thick vest and bunched flannelette chemise. Flannelette drawers over or under some sort of stays—often boned—follow. Then two or three petticoats gathered or pleated into a waistband, or more often attached to a body or two bodies, not infrequently three bodies of varying sizes. Over this is a bunched frock, often kilted, and a pinafore. The garments are of varying sizes, some much too tight, some too large, and there is little freedom of limb such as we would see."

This method of dressing children in layers of flimsy material separated by air is probably as dangerous as could be devised. The projecting corner of a pinafore has only to become ignited, and in a moment the little victim is a mass of flames. On the other hand, the simple "drill" costume, which is being increasingly worn by girls of the more affluent classes, possesses other advantages besides enormously diminishing the risk of injury or death in one of its most terrible forms.



DEATH, Violent

